

# Oral Communications

## C1 Prevalence and characteristics of *Chlamydia trachomatis* infection among three populations of Tunisian women with different risks of sexually transmitted infections.

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*Chlamydia trachomatis* (CT) is considered by WHO as the major curable sexually transmitted infection. Untreated, this infection could lead to many complications, essentially pelvic inflammatory diseases and infertility. Our aim was to investigate CT infections among Tunisian women with different risks of sexually transmitted infections.

Three groups were considered. The first one was female sex workers (FSW, n=188). The second group included 220 women attending a family planning clinic in Sfax (ONFP). The third group was 120 women of infertile couples. Epidemiologic and clinical data were collected for each woman. For the three groups, endocervical swabs served to CT- PCR using Cobas Amplicor (Roche®). Blood samples were also obtained and served to detect CT antibodies.

CT-positive PCR rates were of 71.8%, 7.7% and 21.7% in the first, second and the third group, respectively. Genotyping showed that serovar E was the most detected in the three groups. CT-antibodies were detected in 98% of cases in the first group, 13.6 % in the second and 9.1% in the third one. Among FSW, no demographic or clinic data was associated to this infection. However, women working more than 5 years had more elevated IgG titres. Among women consulting in the ONFP, Chlamydial infections were significantly associated with age under 25 years, unmarried status, high sexual behaviours, pregnancy, high number of induced abortion, hormonal contraception use and partners with suspected behaviours. No clinical signs were associated with CT. We noted that Gram staining showed more altered vaginal flora in women infected with CT ( $p = 0,017$ ). For women of infertile couples, serology was more frequently positive, with a significant statistical difference, among women with secondary infertility or those with tubal infertility.

In conclusion, our study showed high prevalence of chlamydial infections in different at risk populations. No self reported symptom or clinical sign was associated to this infection. Thus, screening women with risk factors may help to develop strategies for improved chlamydial infection control.

## C2 Febrile urinary tract infections in men. Report of 100 cases.

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**Objectives:** Febrile urinary tract infection (FUTI) in men is always classed as complicated. The goals of this study were to describe clinical and epidemiological profile of febrile UTI in adult men.

**Methods:** Retrospective analytic study included men which were admitted for FUTI at infectious diseases department in the university hospital of Monastir between 2004-2010. Clinical and epidemiological features were collected. Inclusion criteria were: age  $\geq 15$  years, temperature at admission  $\geq 37,8^{\circ}\text{C}$ , flank pain or cost vertebral tenderness and/or urinary tract symptoms and bacteriuria  $> 10^5/\text{ml}$ .

**Results:** A total of 100 cases were included. The mean age was  $52.1 \pm 21.9$  years (15-90). The major comorbidity was diabetes, noted in 23 cases (23%). Risk factors were especially previous UTI (23%), benign prostatic hyperplasia (21%), urological surgery (10%), and urinal stones (9%). Clinical symptoms were: fever in all cases, urinary tract symptoms in 89 cases and flank pain in 81 cases. Laboratory results showed that the average of white blood cells was  $14.10^3 \pm 0.6.10^3$  and the average of CRP was  $101 \pm 8$  mg/l. Acute renal failure was noted in 17 cases (17%). *E. coli* was the most common bacteria isolated in urine culture (76%). Blood culture was positive in 5 cases (5%). As a result of these explorations, diagnoses were: acute pyelonephritis (AP) in 66 cases (66%), prostatitis associated to AP in 28 cases (28%) and isolated prostatitis in 6 cases (6%). Antibacterial treatment was based on monotherapy in 79 cases (79%). The most common used antibiotic was fluoroquinolones in 71 cases (71%). Mean duration of treatment was  $17 \pm 7.8$  days. Treatment duration was longer in prostatitis than in AP (19.6 d versus 15.6 d,  $p = 0.028$ ). Mean duration of apyrexia was 57.6 hours with no statistical difference between prostatitis and AP ( $p = 0.11$ ). Complications were noted in 10 cases: death in 4 cases (4%), perirenal abscess in 3 cases (3%), septic shock in 2 cases (2%), and renal failure in 1 case (1%).

**Conclusion:** In FUTI in men, prostatitis must be systematically suspected and antibiotic with high prostatic diffusion prescribed.

### C3 Prevalence of Listeria Among Pregnant Women in Libya

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Listeria has known to be an associated with abortion, preterm labor and even neonatal meningitis. Such abnormality are rarely investigated.

**Objective:** The objective of this study were to determine (1)the prevalence of listeria among Libyan pregnant women.(2)The complication associated with listeria in such women.(3) To outline guide lines to control such infection in gynecological words. Methods: A total of 122 pregnant women were aged from 20-42 years were studied in a year time. Tow vaginal swabs were collected from each pregnant women and cultured on specific media to detects listeria. Each isolate was identified by standered microbiological methods. **Results:** Results of the patches studied for listerias was isolated from 13 (10.66%), these include 9 (7.38%) *listeria ivanovi*, 2 (1.64%) *listeria welshmeri*, 2 (1.64%) *listeria monocytogenes*. The prevalence of infection was 15.8% among age 32-37, the infection was 16.1% at first trimester ,3.1% at second and 11.9% at third trimester. Recurrent abortion was 17.9%

**Conclusion:** Listeria was found to be important factors in pregnancy complication particular with third trimester among middle aged pregnant women. Hence there is specific guide line to be implemented to combat such problem including: Dietary control and surveillance program.

### C4 Epidemiology of infective endocarditis in Tunisia: a multicenter retrospective study 2001-2011

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**Background :** Since the first description of infective endocarditis, the profile of the disease has evolved continuously with stable incidence. However, epidemiological features are different in developing countries compared with western countries.

**Objective:** To describe epidemiological, microbiological and outcome characteristics of infective endocarditis in Tunisia.

**Patients and methods:** It was a descriptive multicenter retrospective study of inpatients treated for infective endocarditis from 2001 to 2011. Charts of patients with possible or definite infective endocarditis according to the Duke criteria were included in the study.

Results: Three hundred ninety eight patients (234 males, 164 females; mean (SD) age = 42 years, range 1–80 years) were reviewed. The most common predisposing heart disease was rheumatic valvular disease (34.4%). Infective endocarditis occurred on prosthetic valves in 23% of cases. Causative microorganisms were identified in 50% of cases: streptococci (41%), enterococci (6.9%),

staphylococci (37.9%), and other pathogens (13.8%). Neurological complications occurred in 22.4% of czses. Early valve surgery was performed in 47% of patients. The in-hospital mortality was 12.3%.

**Conclusion:** The incidence of Infective endocarditis remains stable, occurring among older patients than previously reported, but we noted a decrease of underlying rheumatic disease and in –hospital mortality. However this study confirms the high frequency of negative blood cultures.

### C5 Staphylococcal Infective Endocarditis

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**Introduction:** *Staphylococcus aureus* (SA) is usually responsible for acute and destructive infection carrying a very high risk of mortality (45%) in prosthetic valve endocarditis (PVE), whereas *coagulase-negative staphylococci* (CNS) produce more protracted valve infections (except *S. lugdunensis* which frequently has an aggressive clinical course). The aim of this work is to report the clinical and the microbiological features, the management and the outcomes of Staphylococcal infective endocarditis (SIE) in a Tunisian department of Cardiology.

**Methods:** Patients included in this retrospective study were diagnosed to have SIE between 2001 and 2011 at cardiology department of Sfax.

**Results:** The mean age of our patients was 38 years (3-73). Sex ratio was 0.96 (28 men and 29 women). Fifteen patients had a history of rheumatic fever with cardiac impairment, 15 patients had valve prostheses and one patient had a permanent pacemaker. The main risk factors were diabetes (2 patients) and hemodialysis through an arteriovenous fistula (4 patients). Six patients underwent cardiac surgery within an average of 10 days. The average time for consultation was 15.4 days. Physical examination had shown fever (96.5%) and heart murmur (80.7%). The mean time of diagnosis was 7.9 days. The mean hospital stay was 41 days. Blood cultures were performed for all patients with average of 6 samples per person and a positivity rate of 50%. SA is the common strain found (27 patients or 47.3%, among whom 63 % were methicillin-susceptible) followed by CNS isolated in 19 patients (33.3%). Trans-thoracic echocardiography (TTE) and trans-esophageal echocardiography (TEE) were performed for all patients in order to confirm SIE. Vegetation is the common ultrasound finding (77%) which was mobile in 72%. In 75% of cases, the vegetation size exceeded 10mm. Other devastating effects were revealed such perforation (7



cases), annular abscess (3 cases), fistula (3 cases), dehiscence of prosthetic valve (1 case) and myocardial abscess (1 case). SIE occurred most frequently on native valve (68%) against 29.8% on prosthetic valve. One case of pacemaker lead SIE was noted. The main therapeutic association was oxacillin-gentamicin in front of methicillin susceptible strain and glycopeptid-rifampin or quinolones otherwise. Surgery was indicated in less than 50% (27 patients) mostly for hemodynamic complication or to prevent systemic embolism. The final prognosis was favorable: 9 cases of early recurrence and only 9 patients died (15.7%).

**Conclusion:** SIE remains a great challenge because of its clinical, echocardiographic and microbiological particularities. It should be kept in mind that this infection needs strong collaboration between physicians. Echocardiography plays a pivotal role in the diagnosis. The rapid biologic identification can lead to prompt confirmation and management, including early referral for valve replacement.

#### 66 Infective Endocarditis at the American University of Beirut Medical Center: a 23-year experience

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**Introduction:** Over the past few years the western literature redefined infective endocarditis (IE) as an increasingly health-care associated infection in a significantly older population. *Staphylococcus aureus* has become the leading organism paralleling a decline in rheumatic heart disease (RHD). In Lebanon, the single study on adult IE published by our group in 2002 demonstrates a continued predominance of *Streptococcus species* amidst a high incidence of RHD. We herein compare two time frames in terms of epidemiology and microbial etiology of IE at the American University of Beirut Medical Center (AUBMC).

**Methods:** Adult patients, admitted to AUBMC between September 1987 and November 2010, with a discharge diagnosis of IE were retrospectively assessed using the revised Duke criteria. Definite and possible cases were included in the analysis. Univariate analysis was performed to compare patients, disease characteristics and microbial etiologies before and after 2001.

**Results:** 166 patients were identified, 86 before 2001 and 80 after 2001. Diabetes was the most common comorbid condition (10.5% and 16.3% before and after 2001, respectively;  $p=0.27$ ) but there was a significant increase in patients with malignancies (2.3% vs. 13.8%,  $p=0.01$ ). *Streptococcus species* accounted for the majority of isolates despite a non-significant decrease (39.5% vs. 26.3%,  $p=0.07$ ), most commonly identified as viridans streptococci (22.1% vs. 17.5%,  $p=0.46$ ). The number of *S. aureus* isolates remained unchanged (19.8% vs. 20%,  $p=0.97$ ) with low rates of Methicillin-Resistant strains (5.8% vs. 3.8%). A significant rise in *Enterococcus species* was noted (3.5% to 15%,  $p=0.01$ ).

Prosthetic valve IE rates increased, albeit not significantly (19.8 vs. 30%,  $p=0.13$ ) and RHD remained the most common native valve predisposition (15.1% vs. 16.3%,  $p=0.84$ ).

**Conclusion:** In contrast to other contemporary reports, RHD consistently remains the main predisposing native valve abnormality in our patients with a persistent preeminence of streptococcal IE and a significant rise in enterococcal IE. Despite an increase in nosocomial IE and an older population, the proportion of *Staphylococcus aureus* as a causative organism has remained unchanged with low rates of MRSA.

#### 67 Right-sided infective endocarditis: A Tunisian experience

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Right-sided infective endocarditis was a rare infection. However, its prevalence among patients with infective endocarditis (EI) has shown an increase from 5 % in earlier series to 14 % in more recent series. Right-sided valvar endocarditis was largely a disease of injection drug users (IDUs). The aim of this study is to describe epidemiological, clinical, bacteriologic, therapeutic findings and the outcome of patients with right-sided IE.

**Methods:** We retrospectively reviewed all patients hospitalized for infective endocarditis from January 1998 and December 2011 in the department of infectious diseases at Rabta hospital. At enrolment, data collected include epidemiological and clinical characteristics, and therapeutic findings. Patients with a diagnosis of right-sided infective endocarditis were included. The diagnosis of IE was based on Duke criteria.

**Results:** 16 patients were included in the study. The mean age was 37,7 years (14-72 years) and sex ratio was 4,3. Nine patients (56 %) had a history of intravenous drug abuse. Other predisposing factor were noted: Diabetes mellitus (2 cases), Fallot's tetralogy (1 case), pace maker (1 case). Four patients had also associated left-sided IE. Fever (100 %) and predominant pulmonary symptoms (62,5 %) were the important presenting features. Congestive heart failure was present in 6 patients (37,5 %). Peripheral mucocutaneous manifestation such as Janeway lesions and splinter haemorrhages were seen in 50 %. The murmur of tricuspid regurgitation was heard in 6 cases (37,5 %). Echocardiography revealed vegetations in all patients: tricuspid valves (13 cases), pulmonary valves (3 cases). Blood cultures were positive in 8 cases (50 %). *S.aureus* methicillin-susceptible was the most common pathogens, identified in 62,5 %. Antibiotherapy alone was prescribed in 11 cases (69%), associated to surgery in 5 cases (31%). Antibiotic therapy included a combination of betalactamin and aminosid in 9 cases (56%). The outcome is good for 14 patients (12,5 %). Two patients died. Relapse of right-sided IE was reported in two (14%)

injection drug users.

**Conclusion:** Users of injection drugs develop right-sided IE much more frequently, with tricuspid valve involvement. The poor prognosis of this IE was related to cardiac failure and/or to systemic embolism. So, the prognosis of right-sided IE must be improved by early diagnostic and efficient treatment as well as surgery.

#### 08 Faecal carriage of multidrug-resistant bacteria (MDR) during a non-outbreak situation in Habib Bourguiba university hospital Sfax-Tunisia

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**Introduction:** An important risk factor for nosocomial infection in hospitals is colonization with multidrug-resistant bacteria (MDR). We undertook a point-prevalence survey to determine the prevalence of digestive colonization of hospitalized patients with MDR bacterial species, extended-spectrum-beta-lactamase-producing *Enterobacteriaceae* (ESBLE), carbapenemase-producing *Enterobacteriaceae* (EC), MDR *Acinetobacter baumannii* (MDRABa) and methicillin-resistant *Staphylococcus aureus* (MRSA).

**Methods:** faecal colonization by each of the four MDR pathogens during a point-prevalence survey, 18-22 February 2011, was determined using rectal swab cultures on chromogenic agar : ESBL CHROMagar®, KPC CHROMagar®, AbaCHROMagar® and MRSA ESBL CHROMagar®. ESBL production was tested by a double disk diffusion assay and carbapenemase production by the Hodge test. Resistance genes were sought by PCR.

**Results:** Of 284 hospitalized patients, 82 (28.8%) were colonized with ≥1 MDR organism, 68 (23.9%) with ESBL producing *Enterobacteriaceae* (41 *Klebsiella pneumoniae*, 34 *Escherichia coli*, 5 *Enterobacter cloacae*), 19 (6.7%) with MDR *Acinetobacter baumannii*, 17 (6%) with carbapenemase-producing *Enterobacteriaceae*, and 0.7% with MRSA. Of 82 colonized patients, 18 (21.9%) were colonized by more than one resistant species.

A total of 16 patients were colonized with OXA-48-producing members of the family *Enterobacteriaceae* (15 *K. pneumoniae*, 1 *E. coli*, 1 *P. stuartii*), out of which 16 *K. pneumoniae* were also carrying ESBL-encoding genes. *bla*<sub>CTX-M</sub> of group1 was the most common gene (85%) identified among ESBL producers. The clone *E. coli* O25b:H4-ST131 was detected in 11.7 % of ESBL-producing *E. coli*.

**Conclusion:** The study revealed the wide dissemination of MDR bacteria, including OXA-48 -carbapenemase producers, in a Tunisian hospital during a non-outbreak situation. Public health efforts to combat emergence and dissemination of MDR organisms need to be developed.

#### 09 High rates of community acquired Pantone-Valentine leucocidin (PVL) positive methicillin resistant *S aureus* (MRSA) infections in Rabta hospital of Tunisia

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Methicillin-resistant *S aureus* (MRSA) isolates have been recognised for decades as a major cause of hospital-acquired or healthcare associated infections throughout the world. Over the past ten years the epidemiology of this pathogen has changed throughout the world and infections caused by it become frequently community-acquired. In a present study we investigated MRSA strains isolated in Rabta hospital in Tunis by their antibiotic resistance phenotypes and used a combination of different molecular typing methods including multilocus sequence typing (MLST), *spa* typing, *agr* specificity, and analysis of their pathogenicity profiles.

A total of 59 MRSA strains were isolated in our hospital from community acquired-infections (20 cases) and hospital acquired-infections (39 cases). *S. aureus* was identified by standard microbiology methods. Antimicrobial resistance was determined by the disk diffusion method in accordance with CA-SFM. The detection of *mec A* gene, virulence factors genes and *agr* groups (1-4) were performed by multiplex. The allelic profiles of MRSA strains were assigned on the basis of their MLST type using the MLST program. *Spa* typing. *Spa* types were determined with the assistance of Ridom Staph Type software

The most frequently detected toxin gene were the PVL genes (27/59, 46%). PVL genes were harboured by a major clone. 24 of 27 isolates with PVL gene toxin were resistant to tetracyclin, 23 to kanamycin and 22 to fusidic acid and 17 to erythromycin. All isolates were sensitive to gentamicin. Two others minor clones were described: the paediatric clone (*agr* 2, SCC *mec* IV and ST 5) (25%) and the Iberian clone *agr*1, SCC*mec*IV and ST 247 (24%).

In conclusion, in this study we characterized by a combination of molecular typing techniques, a collection of MRSA isolates to investigate backgrounds associated with the changes in the resistance phenotypes of MRSA isolates from a Tunisian hospital. We demonstrate the High prevalence of ST 80 clone (47%). This clone was described by B Nejma *and al* in Monastir hospital but Iberian and pediatric clones were described for the first time in Tunisia.

# POSTERS



**P1 Rare localizations of echinococcosis: our personal experience**

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**Introduction:** Hydatidosis is a parasitic disease. It's generally localized in the liver and in the lung even if any other organ can be potentially affected. The rare localizations of hydatidosis represent an interesting topic, especially with reference to epidemiological and diagnostic problems. Hydatid disease, common in Mediterranean countries, still remains endemic in Tunisia.

**Materials and Methods:** Seven cases of unusual location of echinococcus cysts are described (brain, psoas muscle, orbit, thyroid, pericardium, abdominal wall). Different localizations were discussed.

**Results:** The mean age of patients was 40 years. Hydatid cysts were identified by using a combination of serology tests, ultrasonography, and computed tomography (CT).

**Conclusion:** It is important to be aware, especially in countries where echinococcosis is endemic, that it is possible to find an echinococcosis cyst in a rare localization. The diagnosis of hydatid cyst should be considered in patients with a cystic mass, who live or have lived in a geographic region that has a high risk for echinococcus granulosus, or visited an endemic area.

**P2 Primary cervico mediastinal hydatid cyst: report of a case.**

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**Introduction:** Hydatid disease is caused by the parasitic tapeworm Echinococcus. This parasite in larval stage can thrive in many parts of the body, most commonly in the liver and the lung. Hydatid disease in the head and neck is uncommon and hydatid cyst presents rarely as a cervical mass even in endemic areas (0. 1 to 4% of all locations).

**Methods :** In our work we report a case of cervico mediastinal hydatid cyst discovered intraoperatively. Characteristics of this rare disease, diagnosis and treatment difficulty are discussed.

**Results:** A 53 years old woman was admitted in our department for a progressive swelling in the left side of the neck that occurred one year previously and grew very slowly. On examination, the patient had a 3 cm moderately hard, non-inflammatory subcutaneous cervical mass, located in the left side attached to the deep plane whose lower limit was not well received. No cervical lymphadenopathy was detected. The ultrasound

showed two cervical lymph nodes above the left clavicle with necrotic center.

Chest radiography showed a widened mediastinum superior cervical-mediastinal opacity upper left.

A CT scan was then sought and had demonstrated a pseudo-tissue mass with contrast multilobed heterogeneous manner involving the left anterior mediastinal lymph node with extension to the cervical region, forcing the packet jugulocarotidien and trachea and extending 8cm, referring primarily a magma lymphadenopathy.

All of the etiologic chronic cervical lymphadenopathy fact, returned negative. The patient achieved a cervicotomy with left posterolateral thoracotomy at the fifth intercostal space revealing a hydatid cyst in the cervico mediastinal region. The postoperative course was uneventful. No recurrence occurred with a decline of 1 year.

**Conclusion:** The cervical hydatid cyst is exceptional, even in endemic countries. It must be considered in any cervical cystic mass especially when other locations are available. The clinical symptomatology is polymorphic in connection with the compression of neighboring organs.

**P3 Cardiac hydatid disease: A report of two cases**

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**Introduction:** Cardiac hydatidosis is rare: 0. 5 to 2% of all hydatid locations and 2. 6% intra thoracic hydatid localizations. This is the most common cardiac expansive process in endemic countries. This is a serious disease because of various complications. We report two cases of cardiac echinococcosis.

**Case 1:** Man (27 years), rural origin, with a history of visceral echinococcosis operated poly (liver, lung, heart and spleen), was hospitalized for chest pain, dyspnea with hemoptysis in a context of prolonged fever (4 months). The examination on admission was a systolic murmur latéro-sternal left. Chest radiography showed cardiomegaly and pulmonary parenchymal multiple cysts. Hydatid serology was positive at a rate greater than 1/2560. Echocardiography Transthoracic objectified a huge pericardial cyst next to the right ventricle. A magnetic resonance imaging was a thoracic cystic multi vesicular 10 x 6. 5 cm of diameter at the apex of the heart corresponding to a pericardial hydatid cyst, and hypertrophy of the left lower lobe artery, head of vesicles girls hypointense T1 and T2 filling the arterial lumen for a hydatid embolism of the left lower lobe artery and its segmental. The surgery was impossible. Albendazole

therapy at a dose of 15 mg / kg / day was administered for 6 months. The patient died after 2 years in an array of cardiogenic shock.

**Case 2:** Man (17 years) from rural areas, hospitalized with abdominal pain and asthenia and fever. On admission we found a diffuse systolic murmur at the 4 homes. The chest radiograph showed a right apical opacity of 5 cm. A thoraco abdominal CT showed cystic lesions in the lungs, heart, liver, renal and retroperitoneal intra. Echocardiography Transthoracic objectified the presence of two cystic intra myocardial left ventricle in 26x25 mm. The patient was treated with Albendazole at a dose of 15 mg / kg / day for 6 months. The evolution was good under medical treatment with reducing the size of myocardial intra cystic masses and the patient was called for cardiothoracic surgery.

**Conclusion:** Cardiac hydatidosis is a rare but serious. Echocardiography plays an important role in the positive diagnosis. The treatment of cardiac echinococcosis should be medical and surgical.

#### P4 Pelvic hydatid cyst : about 12 cases

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**Introduction:** The hydatid disease is an anthroozoonosis caused by echinococcal larvae. Its pelvigenital localization is rare and doubtful. The objective is to study its epidemiologic and clinical features, the findings of ultrasonography and CT scans and to discuss its management.

**Materials and Methods:** A retrospective analysis of 12 cases of patients who underwent surgery for pelvic hydatid disease in the department of obstetrics and gynecology "A" of Charles Nicolle hospital of Tunis over a period of 30 years (1980-2009). The hydatid cyst diagnosis was confirmed by histopathology in all cases.

**Results:** The mean age was 35 years. The majority of the patients had rural origins. The patients presented with a pelvi-abdominal mass in 5 cases and with pelvic pain in 4 cases. One patient presented a uterine hydatidosis. Ultrasounds showed multiseptated cysts or a honeycomb appearance in the majority of the patients. Pelvi-abdominal CT scans were performed in one case and showed a disseminated pelvic hydatid disease. Ultrasound examination suggested the diagnosis preoperatively in 4 cases. The hydatid cysts were extragenital in the majority of the cases. Treatment was surgical in all cases and was adapted to the localization, the volume and the surrounding organs of the hydatid cysts. An adjuvant medical treatment was prescribed in one patient who presented a disseminated pelvi-abdominal hydatid disease.

**Conclusion:** The diagnosis of hydatid cyst must be suggested in front of a cystic pelvic mass in an endemic

region. The pelvigenital localization is rare and the ultrasound findings are polymorphous, that is why the preoperative diagnosis is difficult.

#### P5 Treatment of the hydatid cyst of the kidney: a retrospective study about a series of 50 cases

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**Introduction:** Hydatid disease is still endemic in our country. The kidney is a relatively rare site, representing 2 to 4%. Laboratory tests may suggest the diagnosis, which is confirmed by radiology. Renal hydatid cyst raises therapeutic problems making sometimes conservative surgery difficult. Our objective is to find the best treatment adapted of this pathology.

**Methods:** We reviewed clinical records of 50 cases of hydatid cyst of the kidney diagnosed between 1982 and 2010. There were 34 men and 16 women with a mean age of 38 years. Clinical features were dominated by pain (80 %), palpable lumbar mass (56 %), hydaturia (14%) and haematuria (10%). Intravenous urography (30 patients) showed a mass syndrome (66. 6 %). Ultrasonography allowed diagnosis suspicion in 76 % and classification of the hydatid cyst (type I: 20 cases, II: 8 cases, III: 9 cases, IV: 11 cases, V: 2 cases). In fact, the most difficult problem was for the type IV which could be confused with renal tumor. Computed tomography was performed in 9 cases. Hydatid serology was positive in 76 %. Twelve patients had extrarenal localizations: liver (7), spleen (4) and lung (1).

**Results:** All our patients were operated. They underwent resection of the prominent dome (39cases), pericytectomy (7cases) and nephrectomy (4cases). A urinary fistula was found in 7 cases; it was treated by placement of a simple ureteral stent. The postoperative course was marked by a persistent fistula (2cases) and suppuration of the residual cavity of the cyst (2cases) which were treated by ultrasound-guided aspiration-drainage. Finally, we observed one case of digestive fistula which was managed surgically. All of these complications were treated successfully. The follow-up was uneventful with a mean of 9 years.

**Conclusion:** Renal localization of hydatid disease is a benign affection in spite of its apparent morbidity, which could be raised after surgical processing. However, the best processing remains preventive.



**P6 Intrabiliary rupture of hepatic echinococcosis: a risk factor for developing postoperative morbidity.**

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**Introduction:** Surgery of hydatid cyst of the liver remains the basic treatment and is still associated with high morbidity.

The aim of this study is to find out the impact of the intrabiliary rupture of hepatic echinococcosis on the postoperative mortality.

**Patients and Methods:** The current retrospective study included 391 patients with hepatic hydatid cysts and who were hospitalized and operated at our surgical institution between January 1996 to December 2006.

**Results :** The mortality rate was 0. 7% and the overall morbidity rate arised 20. 4%, while specific complications of liver hydatid cyst surgery were seen in 16. 6%. Univariate analysis showed that the predictive factors of morbidity were: the voluminous cysts larger than 9 cm, hydatid cyst of the dome of the liver, hydatid cyst other than unilocular type and when the cysts contain bile or is ruptured into biliary tract. Multivariate analysis showed that only the cysts of the dome of the liver or communicating with biliary canal were the predictive factors of morbidity.

**Conclusion:** The hydatid cyst of the dome and the presence of preoperative complications particularly a rupture into biliary tract represent predictors of postoperative morbidity. The knowledge of these factors can help the surgeon to choose the appropriate surgical procedures ensuring a minimal morbidity.

**P7 Interest of recombinant P29 protein in post-surgical serological follow-up of human cystic echinococcosis in pediatric patients.**

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**Introduction:** Human cystic echinococcosis (CE) is endemic in Tunisia, particularly in the north-west and centre-west of the country and represents a major public health problem due to its high prevalence, morbidity and economic losses. The diagnosis of hydatidosis mainly depends on radiological and immunological techniques, in addition to clinical arguments. The routine laboratory diagnosis is heavily reliant on detection of specific

antibody response.

**Materials and Methods:** We have performed a retrospective study including patients hospitalized or consulting at the pediatric surgery department of Fattouma Bourguiba hospital in Monastir, during the period of January to December 2010. The parasitological diagnosis was based on ELISA serology and hydatid fluid (HF) immunoblotting. The post-surgical serological follow-up was carried out by these 2 techniques in addition to RecP29 Immunoblot serology.

**Results:** A total of 22 patients were recorded, with a sex ratio (m/w) of 1, 7, a mean age of 9 years. The hydatid cyst localization was hepatic in 36% cases, pulmonary in 36. 5% cases, other in 9% cases and multiple in 18% of cases. During initial serodiagnosis, conventional ELISA was positive in 73% of cases, negative in 23% of cases; HF immunoblot was positive in 91% of cases, negative in 4. 5%. RecP29 immunoblot-serology was performed in only 45% of cases, including 60% of positive cases. A complete seronegativity of RecP29 immunoblot was reached within 6 months post-surgery in 67% of cases that were initially seropositive to this antigen or that seroconverted following treatment. Conventional ELISA and HF immunoblot yielded complete seronegativity within 6 months in only 12, 5%.

**Discussion :** RecP29 immunoblot was positive in less cases than HF immunoblot and conventional ELISA. Thus, RecP29 immunoblot-serology has not a great interest in the initial CE serodiagnosis. RecP29 serology showed a complete seronegativity earlier than HF immunoblot and ELISA. Therefore, RecP29 protein appears more useful for post-surgical CE monitoring.

**P8 Analysis of microsatellite genetic polymorphism of *E. granulosus* isolates from three endemic regions in Tunisia**

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**Introduction:** Cystic echinococcosis is a major public health problem in Tunisia. 10 genetic variants of *Echinococcus granulosus* were identified (genotypes G1 to G10) but only three genotypes (G1, G3 and G6) were observed in Tunisia. The aim of this study was to investigate the genetic polymorphism of five microsatellites sequences of *Echinococcus granulosus*.

**Methods:** We carried out an analysis of 13 human cysts (lung and liver) from F. Bourguiba Monastir hospital and

75 cysts of sheep and cattle (lung and liver) from Kasserine, Gafsa and Kairouan which are some of the most affected regions in Tunisia.

**Results:** PCR products were analyzed using standard agarose and polyacrylamide gel electrophoresis. The Egmsca1 and EMms2 repeated unilocus microsatellite are not polymorphic thus they are not interesting for the study of the genetic polymorphism of *Echinococcus granulosus*. Only one of the three unilocus microsatellites used in this study is polymorphic and two alleles, CA8 and CA10, were found.

Polymerase chain reaction of the U1snRNA multilocus microsatellite generated three banding patterns using standard polyacrylamide gel electrophoresis: two homozygous and one heterozygous profiles. The number of heterozygous and homozygous individuals counts respectively 22% and 78%. These results were verified by calculating F indices of Wright and Cavalli-Sforza and Edwards indices and show a significant deficit in number of heterozygote profile.

Four EmsB (tandemly repeated multilocus microsatellite) profiles were discriminated within *Echinococcus granulosus* samples by polyacrylamide gel electrophoresis. Occurrence is not related to the host or the location of the cyst (lung and liver) and no spatial correlation with the geographic origin of the isolates was observed.

**Conclusion:** Analysis of multilocus microsatellite has proven to be a powerful and interesting tool for genetic polymorphism studies of *Echinococcus granulosus*.

#### P9 Seroprevalence of toxoplasmosis in the general population in the region of monastir

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**Introduction:** *Toxoplasma gondii* is a cosmopolitan, obligatory intracellular Protozoan parasite. Toxoplasmosis is a benign infection in the immunocompetent population. However, it can be serious in the immunocompromised and pregnant women. Its prevalence is variable depending on the country. The aim of our study is to determine the seroprevalence of toxoplasmosis in the general population in the centre of Tunisia.

**Materials and Methods:** we determined toxoplasmic serology in 300 blood donors, from different localities in the governorate of Monastir (the Tunisia centre).

Our population consists of 153 women and 147 men with a sex ratio =1.04. 89% of them come from urban areas and 11% of rural ones. The tests were conducted in the laboratory of Parasitology by a method of enzyme-linked immunosorbent Assay for the detection of specific antibodies IgG and IgM.

**Results:** Our study showed that 42% of the population

had a protective toxoplasmic residual immunity. Toxoplasmic seroprevalence varied with sex. Indeed, our study revealed a rate of 50% in men and 34% in women. The number of cases of positive serology was more marked among the population with a primary educational level with a percentage of 50%. While in those with a University level it's 38%, which shows a correlation between the health status and the educational level. The cat had not influenced the seroprevalence of this parasitosis by its presence. However, some eating habits such as raw vegetables and meat consumption increased this seroprevalence up to 54%.

**Conclusion:** Toxoplasmosis is a common anthropozoonose. It is worrying for pregnant woman and the immunocompromised population on account of its adverse consequences. This parasitosis has a variable prevalence according to countries. Its impact tends to decrease over the years thanks to the measures of hygiene and prevention taken.

#### P10 Seroprevalence of toxoplasmosis in pregnant women in the region of monastir

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**Introduction:** *Toxoplasma gondii* is a cosmopolitan obligatory intracellular Protozoan parasite. It is a benign anthropozoonose agent or hidden in immunocompetent individuals. However, serious forms of toxoplasmosis are observed in immunocompromised patients and pregnant women.

The purpose of our study is to evaluate the current situation of this parasitosis among the population and the evolution of its prevalence among pregnant women in the centre of Tunisia.

**Materials and Methods:** This is a retrospective study of 5092 pregnant women from different localities in the governorate of Monastir (Tunisia's centre), sent to the laboratory of Parasitology of Fattouma Bourguiba University Hospital in Monastir, in routine serological follow-up of pregnancy.

The tests were carried out by a method of enzyme-linked immunosorbent Assay for the detection of specific antibodies IgG and IgM.

**Results:** Our study showed that 44.7 per cent of pregnant women had a residual protective toxoplasmic immunity.

We also noted an evolution of seroprevalence with age. Thus the proportion of positive tests was 44.2% (17 – 20 years old) and 60% (more than 41 years old)

In our sample, we observed 219 seroconversions which corresponded to a rate of 43 per 1,000. 43% of these seroconversions were contracted during the 2nd quarter of pregnancy. Therefore the acquisition of toxoplasmic immunity increase logically with age.

The more advanced the pregnancy was, the higher the frequency of transmission was.

**Conclusion:** Toxoplasmosis is a serious parasitosis for pregnant women. Toxoplasmic serology in the premarital assessment would help to define a risk group (women seronegative), to inform patients of the risks of toxoplasmosis and prevent fetal contamination by hygienodietetic boards.

**P 11 Serologic profile of Toxoplasmosis among pregnant women followed in Pasteur Institute of Tunis**

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**Introduction:** Primary maternal infection with toxoplasmosis during pregnancy is frequently associated with transplacental transmission to the fetus. Therefore, pregnant women are a risk group, for which it is necessary to determine the serologic profile.

**Aim:** We report in this study the serologic profile of toxoplasmosis in pregnant women followed at the Parasitology Laboratory of the Pasteur Institute in Tunis while noting the difficulties in the interpretation of serological results.

**Material and method:** This is a retrospective study in 4 years period (2007-2010) concerning 2070 pregnant women followed at the Parasitology-Mycology Laboratory of the Pasteur Institute of Tunis. Serological diagnosis of toxoplasmosis was done by ELISA (Enzyme Linked Immunosorbent Assay) for the detection of Immunoglobulin (Ig) G and M and the study of toxoplasmosis IgG avidity. Prenatal diagnosis was attempted for 58 women by amniotic fluid sampling. *Toxoplasma gondii* was detected by Polymerase chain reaction (PCR). At birth, the diagnosis of congenital toxoplasmosis was established based on serology.

**Results:** Forty-five percent of women in this study were immunised compare to 49% who have a negative serology. An active toxoplasmosis acquired during pregnancy was detected in 3.8% of cases. Among them, 33% seroconverted to positivity for toxoplasmosis during pregnancy and 67% had a recent toxoplasmosis infection before the positivity of IgG and IgM on the first sample with a low index of avidity (IA). A fourth group was identified where 21 pregnant women whose serology showed the presence of IgG, IgM and an intermediate or high IA. Of the 58 parturients in whom prenatal diagnosis was performed, PCR was positive in 4 cases. After birth, six cases of congenital toxoplasmosis were detected.

**Conclusion:** The main difficulty is the interpretation of some serological results especially as the first serology is often requested late. Awareness of women to consult as early as possible during any pregnancy information and

means of prevention of congenital toxoplasmosis should be strengthened.

**P 12 Contribution of real-time PCR in the diagnosis of congenital toxoplasmosis**

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**Introduction:** Prenatal diagnosis of congenital toxoplasmosis (CT) has undergone important changes with the introduction of molecular biology techniques, particularly the polymerase chain reaction (PCR), applied to samples of amniotic fluid. The advent of real-time quantitative PCR (q-PCR) has opened new perspectives in this field.

**Objective:** We report and discuss in this study the contribution of q-PCR in amniotic fluid in the confirmation of CT during pregnancy.

**Material and method:** Hundred twenty seven primary toxoplasmic infections, perigravidic or pergravidic, were recruited between September 2004 and December 2011. The toxoplasmic infection in the course of pregnancy was retained on the basis of serological criteria. The DNA was extracted by means of the kit (QIAmp DNA Blood Mini kit, Qiagen). Gene amplification was performed by PCR TaqMan technology. It proved used 2 sets of primers targeting the B1 gene and the cryptic gene "Rep 529 pb".

**Results:** Eleven PCR were positive among the 127 parturients (8, 7%). Six of these women have a medical interruption of pregnancy in spite of the absence of echographic abnormalities and 3 were lost to view. At birth, serological investigations of the 63 followed newborn (ELISA, ISAGA and western blot) were positive in 6 babies among whom one corresponded to a positive PCR. The second baby resulting from a pregnancy with positive PCR was negative by all the tests practiced, probably because of a specific treatment received in utero.

**Conclusion:** Thus, 16 cases of CT were diagnosed with a rate of 12, 6% and sensitivity of PCR was 68. 7% (11 PCR positive for 16 cases of confirmed CT).

**P 13 Acute toxoplasmic retinochoroiditis: Diagnostic and therapeutic management**

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**Purpose:** To describe the clinical, optical coherence tomographic, and angiographic findings in patients with acute toxoplasmic retinochoroiditis (RC) and to assess



therapeutic management.

**Methods:** The study included 47 patients (49 eyes) with acute toxoplasmic RC referred between January 1998 and December 2010. All patients underwent complete ophthalmological examination, fluorescein angiography and optical coherence tomography. The diagnosis was confirmed by dye test or polymerase chain reaction (PCR) after anterior chamber paracentesis. All patients were treated with sub-conjunctival injection of Clindamycin and/or azithromycin.

**Results:** The sex ratio (M/F) and the mean age were respectively 1.23 and 32.4 years. Patients were immunocompromised in 21.3% of cases. The disease was unilateral in 95.7%. Posterior uveitis was noted in 69.3% (34 eyes) of cases. The retinochoroiditis was located in the macular area in 28.5% of case and 9 (18.3%) were found to have serous retinal detachment. There was evidence of associated choroidal ischemia on fluorescein angiography in 3 eyes. Subconjunctival injection of Clindamycin was used in all cases but azithromycin was necessary in 3 cases with conjunctival intolerance to clindamycin. Corticosteroids were associated in 26 cases with hyalitis. For all patients, infection and inflammation were gradually resolved over a mean period 3.26 weeks. The visual acuity improved more than two lines in 75.5% of eyes and remained stable in 11 other eyes. Blindness occurs in 2 eyes with foveal involvement.

**Conclusions:** Ocular toxoplasmosis may be a serious condition when located in the macular area. PCR is helpful in identifying *Toxoplasma gondii* DNA especially in atypical cases. Systemic corticosteroids must be discussed according to the intensity of inflammation. The final prognosis depends on the location of the necrotic lesions, rapid diagnosis, and efficient treatment.

#### P 14 Imported cases of malaria in Tunisia

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**Introduction:** Although malaria has been eradicated from Tunisia in 1979, increasing numbers of travellers each year visit tropical countries where the disease remains a major cause of morbidity and death. Our aim to report the epidemiological, clinical and therapeutical data of imported malaria in Tunisia

**Methods:** we have retrospectively determinate the traveller's destination, the infecting species, the type and

the observance of chemoprophylaxis used, the incubation period and the treatment of cases of imported malaria hospitalised from 1990 to December 2011. Cases of malaria were defined by parasitemia confirmed blood smears.

**Results:** we registered 132 cases. The number of cases rose each year. The mean age of patients was 28 years. In most cases, infection took place in sub-Saharan Africa. Forty-two percent were Tunisian, 42% originally from malaria endemic areas and 6% foreign tourists from non-endemic areas. Seventy-five percent did not use any chemoprophylaxis or admitted no compliance. The onset of symptoms occurred after a mean delay of 14 days after their return (range 1-330 days). *P. falciparum* was the most frequent species (77%). Five cases had a mixed infection with *P. falciparum* and *P. vivax* or *P. ovale*. We noted 128 cases of uncomplicated malaria and 4 cases of cerebral malaria. Therapeutical regimens depended on species. Outcome was favourable in 131 cases. One patient with cerebral malaria died.

**Conclusion:** Greater awareness of the risk of malaria by travellers and physicians in Tunisia must be encouraged and in particular appropriate chemoprophylaxis instituted for travellers to chloroquine-resistant areas.

#### P 15 Imported Malaria Diagnosis in Tunisia: Comparative study between Nested-PCR assay and microscopic methods

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**Background:** The malaria observed in Tunisia is an imported malaria. The annual incidence of the cases does not stop increasing (passing from ten cases at the beginning of the 80s to 40 cases in 2008).

**Material and Methods:** In this prospective study (from June, 2010 till December, 2011), we were interested to compare the direct classic techniques (thin smear and thick drop) to a molecular method (nested PCR) in the malaria diagnosis of 179 patients: 79 symptomatic subjects (who are native or stayed in zones of endemic diseases) and 100 asymptomatic subjects (not resident students). From these patients, we collected 213 blood samples of which 179 samples taken on admission and 34 post-therapeutic samples.

**Results:** Among 179 patients, 31 cases were diagnosed, the prevalence of malaria was 17, 32%. The thick drop, reference technique according to the WHO, was positive in every case (28 symptomatic subjects and three asymptomatic subjects), while the nested PCR was positive in 24 cases (all symptomatic subjects).

So, the sensitivity and the specificity of the nested PCR were respectively 77, 42% and 98%. Furthermore, it allowed the identification of the plasmodial species

revealing a 205pb fragment specific of the *Plasmodium falciparum* in 22 samples and a 120 pb fragment specific of the *Plasmodium vivax* in two samples.

Among 34 post-therapeutic samples, the nested PCR yielded better results (11 positive samples) than thick drop (four positive samples).

**Conclusion and Discussion:** The nested PCR had a good sensibility especially during the post-therapeutics monitoring; nevertheless it can not replace classic techniques because of its relatively long time incompatible with the emergency of the malaria diagnosis

**P 16 Comparison of PCR and microscopy for malaria parasite detection**

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**Introduction:** Although eradicated in Tunisia, malaria remains a priority of our health strategy. Detection of *Plasmodium* in asymptomatic individuals from endemic countries is a critical measure in national program of malaria eradication. The microscopic examination of blood smears is current gold standard laboratory method for detection of *Plasmodium*. However this technique requires a long observation time and well-trained biologist. In this study, the performances of polymerase chain reaction (PCR) and conventional microscopy were compared through a prospective study among African immigrant students benefiting from a systemic screening of malaria.

**Material and Methods:** Between September 2010 and February 2011, 112 blood samples were collected from asymptomatic African immigrant students. They were examined for malaria by microscopy and PCR in the laboratory of Parasitology of Pasteur Institute of Tunis. The Nested PCR targeting plasmodial 18 S subunit rRNA gene was performed according to the protocol established by Snounou et al. (1993).

**Results:** A total of 3 samples were positive by microscopy (2, 7%). The identified species in all cases was *Plasmodium falciparum*. PCR detected 7 *Plasmodium* infections (6, 2%). Of the 109 microscopy-negative samples, 4 were positive in the PCR assay which detected 2 *P. falciparum* and 2 *P. ovale* infections.

**Conclusion:** Although microscopy remains the most appropriate method for malaria diagnosis, molecular diagnostics such as PCR offer a more reliable means to detect malaria parasites, particularly at low levels in asymptomatic malaria infections.

**P 17 Adult visceral leishmaniasis in central Tunisia: Report of 8 cases**

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**Background:** Visceral leishmaniasis (VL) is a chronic infectious disease caused by parasites of the leishmanie donovani, it occurs predominantly in childhood; however it may occurs in adult patients. It is becoming an important public health concern.

**Materials and Methods:** A retrospective study was conducted on 8 patients with VL seen at the department of hematology and infectious diseases at the hospital of Farhat Hached Sousse, the study was performed during the period from 1991 to 1996.

**Results:** Included in this study were patients living in center of Tunisia. 4 patients were from Kairouan, the other ones were from: Sousse, Mahdia, Monastir and Kasserine. They were males aged between 17 to 40 years. Fever, enlargement of the spleen and pancytopenia were the common clinical manifestation. 4 patients had hepatomegaly with portal hypertension in two cases. Biological abnormalities were found in all cases. None had evidence of immunosuppression. The diagnostic was made by finding leishmanies amastigotes in bone marrow aspirate and/or indirect fluorescent test for leishmanies antibodies. Parasites were demonstrated in two lymph node biopsy specimens. All patients had complete resolution of symptoms after receiving two 10 days cures of glucantime in a dose of 65mg /kg per day. There were no adverse side effect of treatment.

**Conclusion:** Hematological abnormalities in VL are common. The pathogenesis is complex and multifactorial. Hypersplenism, hemophagocytosis, chronic inflammation and dietary factors appear to be most important factors. A high degree of suspicion for VL needs to be maintained by the hematologists and it should be included in the differential diagnosis of patients presenting with fever, hepato-splenomegaly, anemia, leukopenia, thrombocytopenia, pancytopenia particularly in geographical areas where the disease is endemic.

**P 18 Visceral Leishmaniasis treatment with Nmethylglucamine (Glucantime®): 21 or 28 days.**

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**Introduction:** Infantile Visceral leishmaniasis is a public healthcare issue in Tunisia, where this parasitosis is

endemic and affects infants.

**Objective:** The goal is to demonstrate that the treatment with Nmethylglucantime (Glucantime®) for a period of 21 days is as efficient as it is for a period of 28 days as recommended by the World Health Organization.

**Patients and Methods:** it is a seven year prospective study (from 2004 to 2011) that was conducted within the Pediatric Emergency Department of the Béchir Hamza Children's Hospital of Tunis. For each patient included in the study Nmethylglucamine treatment was started. We alternated between 21 and 28 day treatments (starting for the first patient with a 28 day treatment). We have studied the epidemiological, clinical, paraclinical and evolving features before the treatment, at the 7th, 15th, 21st and 28th day of treatment, and one and 3 months after the treatment.

**Results:** 48 patients were listed, 5 were evicted for showing signs of stibio-intoxication. In the 43 remaining patients, 24 received Nmethylglucamine during 28 days and 19 during 21 days. Both groups were comparable as to their clinical and epidemiological features. None of the children relapsed after cessation of the treatment with a mean follow-up of 159.9 days. The disappearance time of the splenomegaly, the anemia, the thrombocytopenia and the leucopenia is similar in both groups. The splenomegaly is the last clinical feature to disappear (64, 9 days).

**Conclusion:** the duration of the leishmaniasis treatment in Tunisia can be cut down to 21 days instead of 28, allowing a saving for the health economy, while awaiting for the eventual use of AmBisome.

#### P 19 Cutaneous leishmaniasis: retrospective study of 61 cases

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**Introduction:** Cutaneous leishmaniasis (CL) is a widespread parasitic disease that represents a major public health problem in different countries including Tunisia. We propose to study the epidemio-clinical characteristics of CL through a hospital serie.

**Patients and Methods:** In our study, we reviewed the files of patients of CL in the Dermatology Department of Fattouma Bourguiba in Monastir over the 5 previous years (2007-2011). For each patient, we identified epidemiological, clinical, paraclinical, and therapeutic characteristics. The diagnosis of CL was made on a set of epidemio-clinical arguments, the parasitological observation of the parasite in direct smears or/and polymerase chain reaction (PCR).

**Results:** A total of 61 patients were included. The average age was 26.6 years and the sex ratio was 0.96. 72% of patients consulted in autumn and winter. Nighty

one per cent of patients originated from the center of Tunisia. The most frequent clinical aspect was nodules (47%) which were located on the face in 37%. Clinical diagnosis was confirmed by direct parasitological study in 68% of cases and PCR in 32%. The treatment of choice was metronidazole in 41% of cases, cryotherapy in 28% of cases, Glucantime® administered by the intralesional route in 13% of cases and by systemic way in 16%. The outcome was favorable in 90% of cases.

**Comments and Conclusion:** Cutaneous leishmaniasis remains an emergent disease in Tunisia. Recent environmental changes, auspicious to phlebotomine vectors and rodents reservoirs, had probably contributed to that situation.

#### P 20 PCR-RFLP for the species identification of *Leishmania* isolates from cutaneous leishmaniasis lesions in Tunisia

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**Introduction:** Cutaneous leishmaniasis (CL) is endemic in Tunisia. Three forms due to 3 different species are described. The species identification is useful for epidemiological data and for cases management. The aim of this study is to evaluate PCR-RFLP identification of *Leishmania* strains isolated from CL Tunisian patients and to compare the obtained results of iso-enzyme analysis.

**Patients and Methods:** Sixty one samples of CL lesions were cultured on NNN medium and tested by PCR assay targeting the ITS1 region of ribosomal DNA. Identification of isolates was performed by both iso-enzymatic typing for 32 positive cultures and RFLP using HaeIII enzyme for the digestion of the obtained amplicons.

**Results:** The iso-enzymatic typing identified *L. infantum* (n=3), *L. major* MON-25 (n=23) and *L. killicki* MON-8 (n=6) while the PCR-RFLP digestion profiles of 56 strains amplicons identified *L. infantum* (n=12), *L. major* (n=38) and *L. tropica* (n=6). All the isolates tested by both techniques showed a concordant identification. Species characterization correlated with the geographical distribution of CL forms in Tunisia.

**Conclusion:** PCR-RFLP revealed concordant with iso-enzyme electrophoresis for the identification of *Leishmania* strains responsible of CL in Tunisia. Thanks to its simplicity, rapidity and ability to be performed directly on biological samples, this technique could



highly contribute for the epidemiological surveys and the management of cases.

**P21 Bilateral chronic and granulomatous total uveitis succeeding to cutaneous leishmaniasis**

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**Introduction:** To report an exceptional case of chronic, granulomatous and bilateral total uveitis succeeding to a cutaneous leishmaniasis.

**Case report:** A 14-year-old patient was hospitalized because of disseminated cutaneous leishmaniasis. She had ten ulcerated and scabby nodular lesions on the two legs and the right forearm. Leishmaniasis diagnosis was confirmed by a parasitological examination. She was treated with systemic meglumine 15 mg/kg per day for 15 days. The evolution was favourable. Twenty days after the hospitalization, she complained of markedly bilateral decreased visual acuity. Direct fundus examination objectified bilateral granulomatous panuveitis. Clinical exam, laboratory investigations and radiological findings were in the range of normal bringing to exclude common aetiologies of this total uveitis. Because of the chronic evolution and the aggravation of the ocular lesions, intensive and systemic corticosteroids had been prescribed.

**Conclusion:** To our knowledge, this is the first observation of granulomatous uveitis associated to human leishmaniasis.

**P22 Prevalence of intestinal parasites in Tunis over seven years: 2005-2011**

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**Introduction:** Digestive disorders caused by intestinal parasites in our country are still a reason for consultation in medical practice, and pose a relatively high morbidity. The aim of our work was to study the epidemiology of intestinal parasites.

**Material and Methods:** This is a retrospective study of 6398 stool samples and 909 scotch-test tapes addressed at the laboratory of Parasitology-Mycology at Charles Nicolle Hospital in Tunis during a period of 7 years (2005-2011). The samples were from 4836 patients hospitalized or consulting services or different clinics in the region and referred by physicians of free practices. For each stool sample, we performed a macroscopic examination, direct examination fresh and after Lugol staining and examination after Ritchie concentration.

**Results:** Only 1214 patients (30.6%) had three fecal examinations at three day intervals. Of the 6398 stool

samples received, 1069 were positive with an index of parasitism of 16.7%. The scotch-test tapes were positive in 22.2%. Parasitism was dominated by protozoa in 61.6% of cases. Non-pathogenic protozoa (39.5%) were essentially represented by *Endolimax nanus* (22%), *Entamoeba coli* (11%), *Chilomastix mesnili* (2.9%) and *Entamoeba hartmani* (2.7%). Pathogenic protozoa (22.1%) were dominated by *Giardia intestinalis* (11.2%) followed by *Dientamoeba fragilis* (10%). *Entamoeba histolytica/E. dispar/E. moshkovskii* were found in 1.1% of cases. Helminths (5.1%) were essentially represented by *Enterobius vermicularis* in 52.7% (22.2% of scotch-test), *Teania saginata* (23.6%), *Strongyloides stercoralis* (14.5%) and *Hymenolepis nana* (7.3%). *Blastocystis hominis*, whose pathogenicity is still unclear, was found in 48.8% of parasites isolated. A parasitic association was found in 19.5% with a biparasitism in 85.6% of cases. The annual evolution of intestinal parasites between 2005 and 2011 was marked by an increased number of examinations and number of positive cases (11% in 2005 vs. 19.5% in 2011).

**Conclusion:** Repeated examinations of stool increase the chances of detecting asymptomatic carriers of intestinal parasites, dominated by non-pathogenic protozoa, and provide a better estimate of their prevalence. The persistence of a significant level of intestinal parasitism encourages us to improve health education and conduct prospective studies to identify risk factors for these infections.

**P23 Genotype identification of *Enterocytozoon bieneusi* isolates from stool samples of HIV-Infected Tunisian patients**

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**Introduction:** *Enterocytozoon (E.) bieneusi* is the most identified species of Microsporidia. It is often associated with chronic diarrhea and wasting in immunocompromised patients. The aim of this study was to characterize for the first time, genotypes of *E. bieneusi* involved in HIV-infected Tunisian patients.

**Materials and Methods:** Seven stool samples obtained from HIV-infected patients were screened for microsporidiosis by light microscopy and PCR using universal primers V1/PMP2 and species-specific primers V1/EB450. *(E.) bieneusi* strains were genotyped by the sequence analysis of the ITS region located in rRNA

genes as described by Rinder *et al.* PCR reactions for genotype identification were performed using MSP3A and MSP4B primers, which amplify a 508 bp fragment. The obtained PCR products were sequenced in both directions. Each *E. bienersi* strain was classified by comparing sequence to those available in the GenBank database and by alignments were performed by Clustal X 1.83 for windows.

**Results:** Three distinct genotypes, previously described in other studies, were identified. Genotypes D and B were characterized in 4 and 2 isolates respectively. The genotype Peru 8, previously reported only in Peru, was detected in the last isolate.

**Conclusion:** These results indicate a genetic diversity in *E. bienersi* strains from HIV Tunisian patients and suggest the coexistence of both zoonotic (genotype D) and anthroponotic route (genotype B and Peru 8) of transmission. Further studies including larger numbers of human and animal isolates are required to confirm both hypotheses.

**P 24 Comparison of capillary electrophoresis and direct sequencing in the analysis of Upstream Conserved Sequence of *Pneumocystis jirovecii***

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**Introduction:** The major surface glycoprotein (MSG) of *Pneumocystis jirovecii*, a pathogen responsible for pulmonary pneumonia in immunocompromised patients, is the most abundant surface protein and appears to play a critical role in the pathogenesis of *Pneumocystosis*. The expressed MSG gene is located immediately downstream a region called the Upstream Conserved Sequence (UCS).

**Materials and Methods:** In the present study, we have used capillary electrophoresis and direct sequencing to detect the variability in the tandem repeat units of UCS.

**Results:** We have identified three types of repeat units which consisted of 10 nucleotides. By direct sequencing PCR products from 12 patient samples, we identified two different patterns of UCS repeats with 3 and 4 repeats: 1, 2, 3 (91.7%) and 1, 2, 3, 3 (8.3%). The same samples were analysis by capillary electrophoresis. Three samples (25%) were found to contain a mixture of 2 or 3 different patterns of UCS repeats. One patient had association of two strains with 3 and 4 repeats. In addition, two patients have an association of strains with 2, 3 and 4 repeats.

**Conclusion:** Quantifying the number of repeat units of UCS by capillary electrophoresis provides a potential new method for rapid typing *P. jirovecii* and detection of

mixed infection. Direct sequencing can detect (in single infections) single nucleotide polymorphisms as well as length variation in the UCS intron.

**P 25 Phtiriasis palpebrarum may mimic blepharitis**

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**Introduction:** Phtiriasis palpebrarum is a rare eyelid infestation caused by the ectoparasite, *Phtirius pubis*. It affects especially the children and it can easily be misdiagnosed as blepharitis.

The goal of this study is to describe seven cases of phtiriasis palpebrarum in children and adults which was misdiagnosed as blepharitis in two cases.

**Clinical cases:** They were five men and two women. Their ages ranged from 4 years to 50 years with a mean of 21.57 years. They were four children and three adults. The main symptom was itching of eyelids. Clinical signs include reddish-brown deposits on the lashes (louse faeces) and visible lice and nits in some cases. Initial diagnosis was considered to be blepharitis in two cases. The diagnosis was confirmed by parasitological examination of eyelashes which has revealed the presence of nits and adult forms of *phtirius pubis*. The number of adult lice ranged from 1 to 30.

In all cases, the treatment was performed by mechanical removal of both the lice and nits. The evolution was favourable without recurrence.

**Conclusion:** Phtiriasis palpebrarum is more frequent in children. It can be misdiagnosed as blepharitis.

**P 26 Nasopharyngeal myiasis in the intensive care unit: about a case**

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**Introduction:** Myiasis is the invasion of the tissues or organs by larvae of Diptera. Myiasis frequently occurs in livestock and pets in rural areas. In humans, myiasis occurs primarily in unhealthy individuals. *Lucilia sericata* is a necrophagous fly that is important in forensic medicine because it is used as a biological indicator in estimating post-mortem interval. It also has a significant role in human medicine because its larvae are used for healing chronic injuries that do not respond to conventional treatments such as ulcers containing gangrenous or necrotic tissues. Additionally, it is characterized as a facultative ectoparasite responsible for

primary cutaneous myiasis in sheep.

**Aim:** We describe a nasal myiasis caused by the maggots of the green bottle fly, *Lucilia sericata*, (Diptera : Calliphoridae).

**Case report:** On April 2011, a 13-year-old girl, was admitted to the Department of Pediatrics. She was suffering from an acute nephritic syndrome due to acute glomerulonephritis or disseminated lupus erythematosus. She was transferred on 23 April 2011 to the intensive care unit because of respiratory distress. The 18 May 2011, four fly larvae were discovered moving inside her nose and oral cavities. Examination of these larvae on a glass slide under light microscopy showed that they were *Lucilia sericata*. The larvae were hemicylindrical and cream colored. It measured 8 to 10 mm and had 12 segments. The anterior end had a pair of spiracles with 7-8 lobes. The pair of posterior spiracles was grouped into 3 non vertical and parallel slits. Identification of the species prior to treatment is important because not all types of myiasis are benign. The treatment consisted only of the removal of larvae by nasal endoscope.

**Conclusion:** Control of fly population including the use of screens is needed in hospital especially in the intensive care unit.

**P27 The clinical, biological, therapeutic and evolutionary aspects of pulmonary aspergillosis of patients followed in F Hached hematology service.**

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**Introduction:** The invasive pulmonary aspergillosis (IPA) is the most severe clinical form of Aspergillus infection with a mortality between 50 and 90%. It is an opportunistic infection that occurs mainly in patients with hematologic malignancies.

**Patients and Methods:** we proceed with a retrospective analytical study of 45 cases of IPA diagnosed over 10 years. we describe the clinical aspects of this disease and we assess the contribution of different diagnostic methods used.

**Results:** 29men and 16women with a mean age of 35years. All patients were hospitalized for treatment of hematologic malignancies. The average duration of neutropenia was 27 days. Symptomatology was dominated by fever (95. 6%) followed by cough (71. 1%). The crackles were present in 28% of cases. The Xray chest was normal in 29%cases and showed diffuse reticulo-nodular opacities in 26% of cases. Chest CT scan done in 29 patients showed excavated opacities in 75% of cases. The cerebral localization was found in 2 cases, liver in 1 case and skin in 1 case. The mycological examination of sputum was performed in 25 patients

with a positive direct examination in 19. 2% and a culture showing the presence of A Flavus in 80%, A Nidulans in 10% and A Niger in 10%. The bronchoalveolar lavage (BAL) was performed in 12. 7% of cases. Serology performed in 42 patients, showed a seroconversion in 15 patients. The Aspergillus antigenemia performed in 71. 1% of cases, was positive in 48. 5% of cases. The IPA has been proven in 2 cases, probable in 19 cases and possible in 24 cases. Treatment was initiated empirically in all patients. 39 patients had amphotericin B as first-line treatment, 16 patients had a switch to voriconazole. The outcome was favorable in 24 patients and fatal in 21 patients.

**Conclusion:** The IPA is a major infectious complication in oncology and hematology. Early diagnosis and rapid establishment of antifungal therapy are essential to improve prognosis.

**P28 Invasive pulmonary aspergillosis in pediatric patients**

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**Introduction:** Invasive pulmonary aspergillosis (IPA) has emerged as an important cause of morbidity and mortality in immunocompromised children. Improvement of survival may rely on the early recognition of IPA and prompt initiation of antifungal treatment. The purpose of this study was to determine the presentation and epidemiology of this disease at our department.

**Methods:** We reviewed the medical records of all patients who developed IPA between 1987 and 2011 at the pediatrics department in Sfax.

**Results:** During the study period there were 6 cases of IPA. Two children had proven IPA, and four children had possible IPA. Their median age was 5 years and 10 months. Among these patients, four had history of BCG-itis. Fever and cough were present in all cases. In our study, the chest X-ray findings were non-specific: localized alveolar infiltrates (4 cases), diffuse alveolar infiltrates on the left side (1 case) and right basal opacity (1 case). Computed tomography had shown bilateral alveolar opacities and adjacent pleural thickening in two cases, lobar consolidation in three cases and excavated opacity in one case. Definitive diagnosis of primary immunodeficiency (PID) was made in 5 children and all of them had chronic granulomatous disease (CGD). A definite diagnosis of invasive pulmonary aspergillosis was made in two cases. Confirmation was established by the demonstration in lung tissue of septate hyphae in one case and positive blood culture in the second one. All children were treated with anti-fungal therapy (amphotericin B and itraconazole). There is only one favorable outcome. Three patients died of disseminated



aspergillosis affecting lung, bone (2 cases) and thyroid glands (1 case).

**Conclusion:** Optimal treatment of invasive aspergillosis involves early diagnosis and treatment utilizing the most current diagnostic technologies and antifungal strategies. Invasive pulmonary aspergillosis is most readily defeated when it is attacked early in the disease process. Therefore, this fungal infection is associated with a high-mortality rate, especially in immunocompromised children.

**P 29 Invasive aspergillosis in pediatric patients: a review of 5 cases**

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**Introduction:** Immunocompromised children are at heightened risk for invasive aspergillosis. Pediatric invasive aspergillosis is associated with a high mortality rate (generally >50%) and requires prompt diagnosis and treatment to prevent dissemination and death. This study aimed to describe the epidemiology, diagnosis, and treatment of pediatric invasive aspergillosis.

**Methods :** This study was retrospective, conducted at the Pediatrics, Emergency and Pediatric Intensive Care Department of Hedi Chaker Hospital, from 2005 to 2011.

**Results:** 5 cases of invasive pulmonary aspergillosis were diagnosed during the study period. The sex-ratio was 0.4. The mean age was 5 years (1-10 years). 4 children were immunocompromised: 3 with chronic granulomatous disease, one patient with lymphoma. Only a 12-month old girl was immunocompetent. All the patients had a history of recalcitrant pneumonia. Tools for diagnosis included radiologic examinations (primarily computed tomography) performed in all cases showing typical excavations and nodular images, the serological test; positive in all cases, the galactomannan assay which was positive in 2 cases, bronchoalveolar lavage, and tissue biopsy performed in only one case. Primary therapy was voriconazole (7 mg/kg IV q12 hours) in 2 cases. The other patients received amphotericin B and were switched to voriconazole. The outcome was favorable in 4 cases. The patient with a B-lymphoma died within 2 months.

**Conclusion:** Morbidity and mortality caused by invasive *Aspergillus* infections are increasing. Early initiation of effective systemic antifungal treatment is essential for a successful clinical outcome in these patients; however, clinical clues for diagnosis are sparse and early microbiological proof of invasive aspergillosis is rare. Clinical diagnosis is based on pulmonary CT scan findings and non-culture based diagnostic techniques such as galactomannan or DNA detection in blood or bronchoalveolar lavage samples.

**P 30 *Aspergillus niger*: an unusual cause of invasive pulmonary aspergillosis associated to chronic granulomatous disease**

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**Introduction:** Invasive pulmonary aspergillosis (IPA) is an opportunistic infection with a poor prognosis occurring primarily in severely immunocompromised individuals. Most infections due to *Aspergillus* species are attributed to *Aspergillus fumigatus*. *Aspergillus niger* is a mould that is rarely reported as a cause of pneumonia.

**Case reports:** We report two cases of IPA in two 6-year-old twin girls with a family history of primary immunodeficiency and a personal medical history of recurrent bronchopneumopathy referred to our Pediatric Department in July 2011 for investigations regarding persistent pneumonia and biological inflammatory syndrome. IPA was confirmed by isolating *Aspergillus niger* from bronchoalveolar lavage and radiology results. Amphotericin B therapy was initiated intravenously for 1 month relayed then by oral Voriconazole for two months. Clinico-biological evolution was favourable. Follow-up computed tomography showed full regression of the pulmonary infiltrates and the thoracic wall mass after 3 months of antifungal therapy. Investigation for immune deficiency revealed chronic granulomatous disease. Our two patients started then on prophylactic antibiotics with co-trimoxazole. We are currently considering HLA identical bone marrow transplantation for them in a near future.

**Conclusion:** Although is a well recognized clinical entity, invasive disease caused by *Aspergillus niger* is less common when compared to *Aspergillus fumigatus* and other *Aspergillus* species. These two case reports demonstrate the potentially aggressive nature of *Aspergillus niger* and highlight the importance of looking for an immune deficiency particularly in the case of uncommon infection such as aspergillosis in early childhood.

**P 31 Systemic mucormycosis : a case report**

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**Introduction:** Mucormycosis is a rare and acute fungal infection which is frequently lethal, usually observed in non-controlled diabetic patients. The infection usually begins in the nose but it can invade the lung, the digestive tract, and the skin. Rhinocerebral mucormycosis accounts for 40 to 49% of mucormycosis

cases. We report the case of systemic mucormycosis revealed by a renal localization. This observation provides one opportunity to recall clinical, histopathological, and therapeutic aspects of mucormycosis.

**Observation:** A 43-year-old woman diabetic with hypertension and Hyperlipidemia who was hospitalized in urology for acute pyelonephritis complicated with a hydronephrosis requiring of a double probe J associated with the antibiotic. Evolution was marked by the installation of shock with coma, in TDM: ischemic accident of the brainstem. She develops a palpebral oedema spread to the hemiface associated with a cutaneous erosion, hemorrhagic chemosis and bilateral mydriasis, in the MRI: extensive orbital cellulitis, pansinusitis and vast ischemia of the brainstem. The mycological study brings to yeast fungus of *Candida albicans* in urines and crusts and presence of hyphal filament in the biopsy. A systemic mucormycosis revealed by an association between renal and rhinocerebral location patient was treated by amphotericin B and the evolution was fatal at the end of 8 days.

**Conclusion:** Mucormycosis is a very invasive infection with highly aggressive potential. Clinical features are not very specific. Early diagnosis of the disease based on the histological study is primordial for favourable outcome

### P 32 Rhinofacial Mucormycosis: 4 cases

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**Introduction :** Exceptionally observed, the mucormycosis is a serious mycotic infection caused by fungi of the order of the mucorales that occurs in immunocompromised patients. In light of 4 comments, we specify the characteristics of the disorder.

**Patients and Methods:** It was 3 men and a woman aged on average 57 years [40-71]. All patients were diabetic and a patient had chronic renal failure. They were hospitalized in a table of face cellulite resistant to the common antibiotic or quickly extensive and necrotic. Endonasale biopsy or skin had confirmed the diagnosis of mucormycosis (*Rhizopus oryzae*). Cranio facial Imaging had highlighted of necrotic and infiltrating injury. All patients received amphotericin B in first intention with surgery for a patient. Three patients died 2 days to three weeks later in a serious septic table. The

onset of renal failure as amphotericin B and its poor cerebral circulation (a patient with cerebral extension) led to the ambisone for 8 weeks relayed orally by itraconazole for 4 months with an improvement for a single patient.

**Conclusion :** Despite the rarity of mucormycosis, these comments attest to its bad prognosis. Need to know think before any other inflammation of the periorbital region in patients at high risk of immunosuppression especially diabetes. The diagnosis is histological and/or mycological. Precociousness of introduction of the treatment can only hope an improvement for infection whose mortality is still high.

### P 33 Sinonasal mucormycosis

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**Introduction:** Mucormycosis is a rare, invasive, fungal infection, caused by different microorganisms of the class Phycomycetes (Zygomycetes). This is a rapidly progressive disease, which affects the debilitated subjects. The patients generally have uncontrolled diabetes mellitus and are acidotic.

**Materials and Methods:** Our study includes eight cases treated between 1997 and 2010 at the ENT Department and Neck Surgery at the Habib Thameur hospital and supported jointly by the departments of internal medicine and anesthesiologists.

**Results:** Our series included 8 patients, 4 males and 4 females, giving a sex ratio of 1. The average age is 55 years with extremes of 24 and 72 years. In 87.5% of cases, patients were diabetic. Functional signs were dominated by purulent anterior rhinorrhea. Ocular signs were present in all cases. Neurological signs, present in all cases ranged from headache to the cranial nerves affection. Mean disease duration was 12 days. All patients underwent CT and / or magnetic resonance imaging. Involvement of the maxillary sinus and ethmoidal cells was observed in 100% of cases. A cavernous sinus thrombosis was noted in 2 cases. The orbital extension was found in 5 cases (subperiosteal abscesses, extra conal fat infiltration...). All patients underwent surgical treatment followed by treatment with antifungal agents. The evolution was marked by two deaths. Mean follow-up of 5 years.

**Conclusion:** Mucormycosis is one of the most rapidly fatal fungal infections. Facial and cerebral CT scan is essential and is systematically abnormal in case of sinonasal mucormycosis. Emergency multidisciplinary treatment should address the diabetes and include rapid surgical debridement and effective antifungal medication. The reference antifungal is amphotericin B, to be administered at maximal dose (3 to 5 mg/kg per day).

**P 34 Middle ear mucormycosis due to *Absidia corymbifera* in an immunocompetent patient: A case report**

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**Introduction:** Mucormycosis is caused by an opportunistic fungus of the class *Zygomycetes*. It's mainly seen in immunocompromised patients and the most common clinical form is the oto-rhino-cerebral. We report here an unusual case of middle ear mucormycosis (MEM) in an immunocompetent elderly patient.

**Observation:** A 72-year-old farmer, with no past medical history, was referred to the department of Infectious Diseases on march 2011, for a 1 month history of left ear pain, otorrhea, and hearing loss, without fever. Physical examination noted purulent discharge in external auditory canal, with marginal tympanic perforation, and peripheral facial paralysis. CT scan of the temporal bone showed bony destruction of the tegmen tympani and the external semi-circular canal, together with invasion of the third portion of facial nerve. Mycologic study showed thick-walled hyphae, suggestive of *Mucorales*. Culture isolated *Absidia corymbifera*. The patient was treated with amphotericin B for 34 days. No surgical treatment was done. Because of acute renal failure, amphotericin B was switched to oral fluconazole for 4 months.

In september 2011, the patient was admitted for ear pain and otorrhea. Histopathology of the mastoid biopsy showed non specific inflammatory granuloma. No bacteria nor fungi was found. Amphotericin B was started and large mastoidectomy was done. Amphotericin B was stopped within 20 days because of acute renal failure and anemia. No other antifungal therapy was prescribed.

**Conclusion:** MEM is very rare especially in immunocompetent patients. Despite therapeutic advances, it still remains a life-threatening condition that necessitates early diagnosis and treatment with parenteral amphotericin B and surgical debridement.

**P 35 Epidemiological profile of the scalp's moths in the region of monastir**

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**Introduction:** The moths of scalp are contagious fungal diseases, affecting mainly children of school age, and causing hair falls. They are due to some species

belonging to the same group of fungi called dermatophytes.

The aim of our study is to determine the epidemiological and Mycological profile of the moths of scalp in the centre of Tunisia.

**Materials and Methods:** This is a retrospective study of 637 Mycological collection of scalp at the laboratory of Parasitology-Mycology of the Fattouma Bourguiba University Hospital in Monastir. Patients were from different localities of the governorate of Monastir (the Tunisia centre). We calculated a sex ratio = 2. 1 with a mean age = 7ans and 2 months with an age range from 1 month to 52 years.

The diagnosis Mycological positive is the highlighting of the fungus in the collection and identification after culture in Sabouraud medium supplemented with chloramphenicol (antibacterial) and Actidione (antifungal).

**Results:** In our study, the moths of scalp are the cause of 8. 75% of superficial fungal infections of the skin and appendages in our laboratory during the study period

We found that the most affected age group was between 6 and 14 years of age, and that the impact of the moth has decreased after the age of 14 years.

In our series, a net male predominance was observed with a sex ratio of 2. 1.

We identified 5 species of dermatophytes, of which three were responsible for more than 90% of the moths. They are: *Microsporum canis* 54. 54%, *Trichophyton violaceum* 27. 27%, *Trichophyton mentagrophytes* 9. 66%, *Trichophyton verrucosum* 6. 25% and *Trichophyton rubrum* 2. 2.

**Conclusion:** The moths of scalp is a benign affection of school children. It is not life-threatening, but represents a social problem in developing countries.

**P 36 Tinea capitis: epidemiological, clinical and mycological profiles**

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**Introduction:** Tinea capitis is still considered a public health problem in our country, and is the most common type of dermatophytosis in children.

The aim of our study was to evaluate the epidemiological, clinical and mycological characteristics of tinea capitis diagnosis in our laboratory.

**Material and Methods:** A retrospective study concerned 111 patients suspected to have tinea capitis over a 3-years period (2009 – 2011). Dermatophyte infections were confirmed using scalp scrapings examined with direct microscopy using 20% KOH solution and cultured on Sabouraud medium agar.

**Results:** Tinea capitis diagnosis was confirmed in 59 cases (53%). The sex-ratio was 3. 2. Age patients were



between 2 and 62 years old with an average of 7 years. The majority of infections occurred in children with age less than 10 years (79.6%). Microsporic tinea was the most frequent (50.8%) followed by trichophytic tinea (27.1%) and inflammatory tinea (11.8%). Positive cultures of dermatophytes were obtained in 55 cases (93.2%): *Microsporum canis* (47.4%) was predominant, followed by *Trichophyton violaceum* (20.3%), *T. verrucosum* (10.2%), *T. mentagrophytes* (6.8%), *M. langeronii* (5.1%) and *T. rubrum* (3.4%).

**Discussion:** A high prevalence of Tinea capitis caused by *Microsporum canis* was found in our region. This zoophilic dermatophyte is rising rapidly most notably due to the high frequency of asymptomatic carriage by domestic animals.

**P 37 Tinea capitis favosa misdiagnosed as tinea amiantacea**

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**Introduction:** Tinea favosa or favus of the scalp is a chronic inflammatory dermatophyte infection of the scalp and less commonly, of the glabrous skin and nails. Favus of the scalp or tinea capitis favosa is characterized by the presence of scutulum and severe alopecia.

In almost cases, favus is caused by *Trichophyton schoenleinii*, anthropophilic dermatophyte.

In Tunisia, favus is becoming exceptional.

In this work, we report an atypical form of favus to *Trichophyton schoenleinii* which was misdiagnosed as tinea amiantacea.

**Case report:** An eleven year-old Tunisian girl, had been treated unsuccessfully for tinea amiantacea with salicylic acid shampoos for two years.

She presented a diffuse scaling of the scalp without scutulum or alopecia.

A diagnosis of tinea favosa by *Trichophyton schoenleinii* was made by mycological examination.

She was treated with griseofulvin and ketoconazole shampoo for twelve weeks.

The evolution was favorable. The follow-up mycological examination was negative.

**Conclusion:** Besides the classic clinical type of tinea favosa, there are many variant of favus which may persist undiagnosed for many years with an ultimate evolution into alopecia.

We emphasize the importance of mycological examination in case of diffuse scaling.

**P 38 Superficial mycosis in type 2 diabetic Tunisian patients: Prevalence and clinical aspects**

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**Objectives:** The prevalence of mycotic infection seems to be higher among diabetic patients than in the non-diabetic population. The aims of this study were to determine the frequency of mycosis and to compare clinical and fungal results.

**Patients and Methods:** This transversal study included 100 type 2 diabetic patients. The mean age was 49 +/- 12 years and the duration of diabetes 10 +/- 4 years and male/female gender ratio: 0.7.

Patients with suspected lesions underwent mycological examination.

**Results:** Clinical signs of presumed fungal infection were found in 70 % of patients, but mycosis was confirmed only in 27%. Fungal foot infection accounted 40% of the patients, mostly due to dermatophytes (92%). The commonest localizations of dermatophytes were interdigital (70%) followed by onychomycosis (27%). The main fungal agent was *Trichophyton rubrum*. The main risk factors for fungal infections were the age of patients (P =0, 001) and duration of diabetes (P=0, 003). Interdigital foot localization of dermatophytes was correlated to age (P=0.01) and to the male gender (P =0.01). The frequency of dermatophytes in nails was higher in type 2 diabetic patients (P= 0.01). Vulvovaginal candidosis and interdigital dermatophytes were more frequent in obese than in non-obese patients. The accuracy and specificity of direct examination were respectively 80% and 72%. The prevalence of positive fungalsamples is significantly higher for participants with less controlled blood glucose (higher HbA1c) (P = 0.01).

**Conclusion:** The high frequency of mycosis in diabetic patients is observed. The main risk factors were age, male gender, poorly controlled diabetes (elevated HbA1c) and obesity.

Therefore, it appears that the fungal foot infection of diabetics require more diagnostic, therapeutic and preventive care in terms of mycotic infections and sudomotoric dysfunction.

**P 39 Dermatophytosis of glabrous skin: mycological study of 206 patients**

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**Introduction:** Dermatophyte infections of the glabrous skin are common. The distribution and prevalence of various species of dermatophytes varies in different

countries and geographical areas of the world. The aim of this study was to determine the frequency of aetiological agents and the clinical variants of dermatophytoses of the glabrous skin.

**Material and Methods:** A retrospective study was conducted in parasitology-mycology department of Charles Nicolle Hospital from January 2009 to December 2011. The specimens, taken from patients consulting for suspicion of dermatophytoses of the glabrous skin, were examined microscopically and cultured on Sabouraud agar medium.

**Results:** Our study includes 206 patients, from whom 271 samples were taken. The diagnosis of dermatophytosis was confirmed in 138 patients (66. 9%) with a positive direct examination in 115 cases and a positive culture in 128 cases. The average age was 27 years and the sex-ratio was 0. 6. Tinea corporis was the most common type of infection (46, 8%), followed by intertrigo (35, 7%), tinea pedis (12, 5%) and tinea manum (4, 79%). *Trichophyton rubrum* was by far the most commonly fungal agent isolated (60. 8%). The other species isolated were: *Microsporum canis* (6. 5%), *Trichophyton violaceum* (5%), *Trichophyton verrucosum* (3. 6%), *Epidermophyton floccosum* (3. 6%) and *Trichophyton mentagrophytes* (0. 7%).

**Conclusion:** *Trichophyton rubrum* (anthropophilic dermatophyte) is the predominant causal agent. Epidemiological surveys are an essential tool for developing strategies for infection control.

**P40 Dermatophytic disease: report of a Tunisian case caused by a sterile dermatophyte identified as *Trichophyton rubrum* by ITS1 and ITS4 sequencing**

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**Background:** Dermatophytic disease is a rare chronic mycosis characterized by polymorphic cutaneous lesions and visceral invasion, and is associated with immunodeficiency and refractoriness to drug treatment. It has mainly been described in North Africa.

We report herein a dermatophytic disease tunisian case caused by a sterile dermatophyte further identified as *Trichophyton rubrum* by ITS1 and ITS4 sequencing.

**Case report:** The patient is a 43 year-old tunisian man. He was addressed to the lab of Mycology of Farhat Hached hospital, Sousse, for cutaneous lesions very evocative of tinea corporis. The lesions first appeared on the abdomen and progressively spread to the back and

the members. Later, papulo-nodules and vegetating plaques appeared involving large parts of the body. On no lymph nodes nor visceral involvement could be demonstrated.

History of the patient revealed that his father and sister were suffering of the same disease. On the other hand, the patient reported previous similar episodes which poorly responded to various drugs including antifungal agents. Examination of skin and nodular lesions showed hyphae. Culture on Sabouraud dextrose agar yielded non-sporulating sterile colonies evocative of a dermatophyte that couldn't be identified at the specific level. The identification was only achieved after the strain was submitted to ITS1 and ITS4 sequencing which concluded to *Trichophyton rubrum*.

**Conclusion:** Dermatophytic disease is a chronic and severe disease because it is resistant to antifungals and can be life-threatening when viscera are involved. In Tunisia, most previously reported cases are caused by *Trichophyton violaceum*. Usually, identification of the species is easily achieved by conventional mycological tests. The case we report herein shows that identification on the basis of the phenotypical characters may be difficult or impossible, so that genome sequencing is needed.

**P41 Onychomycosis: clinical and mycological study**

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**Introduction:** Onychomycosis is a common nail disorder. Far more than being a simple cosmetic problem, infected nail serves as a chronic reservoir, which can give rise to repeated mycotic infections.

This survey was carried out to determine the epidemiological, clinical and causative species of fungal nail infections in patients attending our laboratory during 3 years (2009 – 2011).

**Material and Methods:** We undertook a retrospective study about 266 patients consulting us for suspicion of fungal nail infections. The specimens were examined microscopically and cultured on Sabouraud medium agar.

**Results:** Of 266 patients with clinical lesions on the nails, 169 (63. 5%) had onychomycosis confirmed by direct examination and / or culture. Mean age was 41 years. Onychomycosis was the most prevalent in the 25- to 60-years age group and affect mainly women (66. 7%). Onychomycosis affected 132 toenails (67. 7%) and 63 fingernails (32. 3%). Nail infections were most commonly caused by dermatophytes (58. 4%); toenail was the main location (84. 4%). Dermatophytic onychis were associated with tinea pedis in 22. 7% of toenails cases. *Trichophyton rubrum* was by far the most

commonly isolated (92. 2%), followed by *Epidermophyton floccosum* (3. 3%) and *T. violaceum* (2. 2%). Yeasts were isolated in 40. 9% of cases, predominated in fingernails (60. 3%). *Candida* infections were mainly on account of *Candida albicans* (71. 4%), *Candida parapsilosis* (10. 9%), *Candida tropicalis* and *Candida glabrata* (4. 7% each). Moulds were isolated in 5 cases (3. 3%).

**Conclusion:** Onychomycosis could serve as a good reservoir for recurrent superficial mycoses. Hence, mycological confirmation and early treatment of suspect onychomycosis can prevent from these recurrent fungal infections.

#### P 42 Onychomycosis: a survey of 137 cases

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**Introduction:** Onychomycosis is the most common nail disease. It represents 18-40% of all onychopathies. The aim of our study was to study the epidemiological, clinical and therapeutic options of onychomycosis in a series of 137 patients.

**Methods:** It is a retrospective study including all cases of onychomycosis examined at the dermatology's department of Monastir hospital in Tunisia over a period of 5 years from 2007 to 2011. An operating sheet was established with the following parameters: age, sex, precipitating factors, clinical presentation, laboratory results, treatment and subsequent evolution.

**Results:** There were 137 patients in total with a sex ratio female/male of 2, 3. The mean age was of 44, 3 years (range: 10-79 years). 44 of our patients (32%) were under the age of 40 years. In the population older than 40 years, there were 27 patients older than 60 years (19, 7%). A previous medical history of diabetes, dyslipidemia, hypertension and hypothyroidism was found respectively in 15, 6, 14 and 3 patients. In all our patients, a mycological examination has been performed to confirm the onychomycosis. The toenails were affected in 83 patients(60%), whereas the fingernails in 75 patients(54, 7%). In the patients with toenails, the fungal organism cultured was *Trichophyton rubrum* in 51 cases(37, 2%), while in fingernail onychomycosis, *Candida albicans* and *Candida tropicalis* were found respectively in 25(18, 2%) and 18 cases(13%). As regards the treatment, the oral antifungal was the unique prescription in 47 patients and associated with antifungal lacquer in 34 ones.

**Discussion:** The distribution of onychomycosis in our survey was age-related. It confirms the fact that the occurrence of onychomycosis increases with age. In our survey, we found that *Candida* species were cultured more frequently from fingernails and in the women and *Trichophyton rubrum* was the most cultured fungal

organism in toenails; this observation joint the data of the literature. Treatment is based on oral antifungals alone or combined with ciclopirox and amorolfine lacquers.

#### P 43 Candidiasis malignant otitis externa

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**Background:** Malignant otitis externa is an infection of the external auditory canal that can spread to the temporal bone and adjacent tissues leading to extensive osteomyelitis and cranial neuropathies. Diabetics are particularly susceptible to developing the condition. Fungal cases of MOE are rare.

The aim of this study is to determine epidemiological, clinical, mycological diagnosis, therapeutic and evolving characteristics of candidiasis malignant otitis externa (CMOE).

**Patients and Methods:** A ten years restrospective study was carried out in the Infectious Diseases Department at Rabta University Hospital, Tunis (January 2002-December 2011).

Ear sampling for bacteriological and mycological exams, brain and rock CT and/or MRI was performed in all cases.

**Results:** We included 10 cases of CMOE. They were 8 men and 2 women. The average age was 64 years (49 - 78). All patients were diabetic. Earache (100%), purulent otorrhea (100%) and hearing loss (50%) were the most frequent symptoms. A stenosis of the external auditif duct was objectified in 80% of cases. Cranial neuropathies was found in 30% of cases. Otomastoiditis (50%) and osteitis (50%) were the most frequent radiological findings. Bacteriological exam was negative in all cases. Mycological findings were: *C. albicans* (n= 5), *C. parapsilosis* (n= 4) and *C. tropicalis* (n=1 ). All patients received antifungal treatment: fluconazole (n= 8), amphotericine B (n=1) and voriconazole (n=1).

The outcome was favorable in 60%. Three patients were lost during follow up.

**Conclusion:** Malignant otitis externa is a rare extensive infection. Fungal etiology should be discussed in all cases and particularly when no improvement is obtained under nonspecific treatment.



**P 44 Fungal necrotizing external otitis: report of 8 cases**

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**Introduction:** Fungal necrotizing external otitis (FNEO) is a rare, aggressive and potentially fatal infection. It occurs almost in immunocompromised, elderly and diabetic patients. The prognosis is poor because of late diagnosis. Our objective was to investigate the clinical, mycological and therapeutic characteristics of this infection.

**Patients and Methods:** We report all patients hospitalized for FNEO in the Infectious diseases Department in Sfax during 2000-2011.

**Results:** Our study investigated 8 patients: 7 women and 1 man, all diabetics. The average age was 64.6 years. All patients were hospitalized for persistent otalgia. 6 of them suffered from purulent otorrhea and 4 were febrile during hospitalization. All cases were first treated for bacterial necrotizing external otitis. Diagnosis was reviewed after a lack of response to antibiotic therapy. Three patients developed facial paralysis during disease evolution. The fungal agent was identified on culture: *Aspergillus sp* (2 cases), *Candida albicans* (2 cases), *C. parapsilosis* (2 cases), *C. kruseii* (1 case). For one patient culture isolated *C. parapsilosis* and *A. flavus*. Computed tomography scan (CT) showed a filling of the external auditory canal, tympanic and mastoid air cells for all patients; osteitis of the skull base for a single case. Scintigraphy revealed increased uptake of the petrous bone for all patients, and an intracranial extension in one patient. Treatment was based on fluconazole for *Candida* cases except for the case of *C. kruseii* which was treated by voriconazole. The latter was used to both cases of *Aspergillus*. The case of association of *Aspergillus* with *Candida* has been treated with amphotericin B. The evolution was favorable for 5 patients. 1 patient was lost to follow up and 2 patients died.

**Conclusion:** The frequency of FNEO has increased in recent years. Our series is one of the largest reported to date. It should be suspected in cases where there is no response to antipseudomonal antibiotic therapy. Repeated mycological specimens of the ear canal and even deep biopsies are usually needed to confirm diagnosis.

**P 45 Paranasal sinus fungus ball: diagnosis and management**

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**Introduction:** Paranasal sinus fungus ball is an extramucosal mycosis, usually occurring in immunocompetent people as a monolateral lesion. Functional endoscopic sinus surgery is the gold standard for treatment of this pathology. In this report, we review the literature about fungus ball with particular regard for clinical, histological features and treatment.

**Material and Methods:** From January 1996 to December 2010, 25 patients with sinonasal fungus ball were treated with a purely endoscopic approach. All patients underwent preoperative computed tomography (CT). Odontological evaluation was also performed in patients with maxillary sinus localization. All removed material was sent for pathologic and microbiologic evaluation. All patients were prospectively followed with endoscopic control.

**Results:** A total of 25 patients were included (18 females and 7 males). The mean age was 58.3 years. Sixty per cent of patients (15/25) had a previous history of endodontic care. The most frequent clinical manifestation was facial ache, followed by rhinorrhea, nasal obstruction and cacosmia. Preoperative endoscopic aspect was similar to a bacterial rhinosinusitis with oedema and purulent secretions in 20 cases. All patients performed a CT scan of the face. Maxillary was the most involved sinus (22/25, 88%), followed by sphenoidal (2/25, 8%) and ethmoidal (1/25, 4%) localization. All patients underwent functional endoscopic sinus surgery. Histology confirmed in all cases the presence of hyphae in biopsies without tissue invasion.

**Conclusion:** Endoscopic surgery is a safe and effective treatment for paranasal sinus fungal ball. A proper imaging study by CT scan address diagnosis, which is based upon detection of fungal hyphae at histology.

**P 46 Candida albicans peritonitis : diagnostic and therapeutic considerations about a case**

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**Introduction:** Peritoneal infections with *Candida sp.* are rare. Between colonization and infection, the responsibility of *Candida*, especially *Candida albicans* in intra-abdominal infections is difficult to demonstrate. Several studies conclude to a real pathogenicity of *Candida albicans* in secondary peritonitis especially postoperatively with appears an excess mortality. Through this observation, we pose the problem of therapeutic indication in the case of yeast peritonitis, which must be reasoned and balanced against the seriousness of these major infections.

**Case report:** We report a case of peritonitis with *Candida albicans* in a 65 year old man without significant previous medical history, admitted for

surgery for gastroduodenal perforation causing a localized peritonitis. Suture of the ulcer with drainage of peritoneal fluid were performed intraoperatively. The patient was treated by metronidazole (1, 5g/24h) and amoxicillin+ clavulanic acid (3g/24h) for 2 days. The mycological examination of the peritoneal liquid sent to our laboratory concluded of the presence of *Candida albicans*. An antifungal test (Fungitest®) was performed showing susceptibility to all antifungals tested. Thus, the patient received fluconazole (400mg/24h). The outcome was favorable. The difficulty in this context is based on the interpretation of results and identification of the pathogenic role of *Candida albicans*. There appears an excess mortality in peritonitis yeast. A cure antifungal seems justified emergency during the postoperative peritonitis yeast. Fluconazole is the first-line antifungal. However, the usefulness of the systematic treatment of *Candida* yeasts isolated during peritonitis uncomplicated community has not been demonstrated. However, some authors recommend antifungal therapy if the direct examination of peritoneal fluid found the presence of yeasts showing a large inoculum, or in patients at risk. The origin of the gastroduodenal peritonitis and the presence of *Candida* in the review of peritoneal fluid were poor prognostic factors in our patient requiring the indication of antifungal therapy despite the communal character of the peritonitis.

**Conclusion:** The indication for antifungal treatment is urgent in case of peritonitis nosocomial *Candida* yeasts. In case of peritonitis community, it must be reasoned based on the severity of these infections. This avoids the impact of unjustified treatment by fluconazole on the emergence of resistance in *Candida albicans* and the increased frequency of *Candida* resistant or less sensitive to fluconazole.

**P47 Multidrug-resistant *Candida albicans*: a case report.**

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**Introduction:** Infections due to *Candida albicans* are actually a fairly common complication in intensive care or postoperative period. The changes in the ecology of the endogenous flora induced by antibiotics promote growth and hematogenous spread during a waning immunity. The administration of antifungal drugs for preventive to immunocompromised patients, explains the selection of multiresistant strains. We report the case of a patient who presented a multi-resistant candidemia, with no history of previous use of antifungals.

**Observation:** This is a 31 year old woman without significant medical history, operated in emergency on 29/10/2010 of a mesenteric infarction. She had a resection of 2 meters and hail necrotic caecum with

double stoma. The immediate postoperative course was uneventful. On day 7 postoperatively she was taken to restore digestive continuity. The postoperative course was marked by the occurrence of acute peritonitis related to an anastomotic dehiscence requiring a second time with remaking the stoma and peritoneal lavage.

On day 7, the patient developed a fever. Blood cultures isolated *Candida albicans*. The patient was initially treated by fluconazole for 8 days but not before the clinical and biological improvement, an antifungal was asked.

*Candida albicans* was resistant to several antifungals, amphotericin B with only a minimal inhibitory concentration of 0.125 microgram / ml and 5'fluorocytosine with a minimum inhibitory concentration of 0.06 micrograms / ml were active.

The patient was then treated by amphotericin B. The outcome was favorable.

**Conclusion:** The frequency of acquired resistance to antifungal agents appears to be relatively stable among clinical strains of yeast, suggesting that the antifungal selection pressure in the hospital is well managed. However, we should keep in mind the possibility of the emergence of fungal species resistant to certain antifungal agents, particularly in immunocompromised patients.

**P48 Molecular insights into *Candida glabrata* fluconazole resistance mechanisms**

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**Introduction:** We conducted a hospital surveillance of *C. glabrata* susceptibility to fluconazole in our hospital. In this report, a quantitative real-time PCR in RNA and DNA was realized to determine if it is a hyper-expression, or gene amplification or both were responsible for fluconazole resistance in *C. glabrata* isolates.

**Materials and Methods:** Twenty two isolates from consecutive episode of infections in nine patients were screened for RNA and DNA quantification. Susceptibility test was realized by E-test and the typing of isolates was studied with six microsatellites markers. All statistical analyses were performed with the SAS 9.2 (Cary, NC, USA) statistical software. A *p* value <0.05 was considered statistically significant.

**Results:** A total of nine resistant isolates, five sensitive dose dependant and twenty nine sensitive isolates were studied. Five of the nine resistant isolates expressed a high level of CgCDR1, six expressed a high level of CgCDR2 and three resistant isolates hyper-regulated

CgSNQ2 and only one isolate expressed a high level of CgERG11 than susceptible control isolates TU10 (MIC=0.125 µg/ml). Three of the six resistant isolates that hyper-expressed CgCDR2 showed also a higher level of CgCDR2 DNA. In the same way, resistant isolate that hyper-expressed CgERG11 detected also a higher level of CgERG11 DNA (12.7 times more than TU10). The univariate correlation analysis indicated that an increase of the MIC value was significantly correlated with an increase in CDR1 and SNQ2 expression and that gene expression and their copy number are not independent but many effects exist between CDR2, CDR1 and SNQ2 and on the other hand between CDR2, ERG11 and SNQ2 expression. The positive correlation between gene copy number and expression level was found only for CDR2 gene.

**Conclusion:** In this analysis, we pooled eligible association of the transporters genes CDR1, CDR2 and SNQ2 on fluconazole resistance. These results indicate a possible compounding effect between genes that leads to a significantly increased risk of fluconazole resistance.

#### P 49 Keratomycosis

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**Purpose:** To determine epidemiological, clinical and mycological characteristics of fungal keratitis and to discuss its therapeutic results.

**Patients and Methods:** We performed retrospective study including 8 cases of fungal keratitis collected over a period of 12 years (January 1998-December 2011). The diagnosis of keratomycosis was based on clinical features and mycological examination who interested corneal scraping. All patients received topical and systemical antifungal therapy.

**Results:** Six women and 2 men were included in this study with a mean age of 32.6 years. The most common risk factors were contact lens (50%) and corneal trauma (37.5%). The isolated fungi were *Candida albicans* (4 cases), *Aspergillus* (3 cases) and *Fusarium* (1 case). The evolution was favorable in 7 cases. Three patients retained corneal scars. Blindness occurred in 1 case complicated with panophthalmia.

**Conclusion:** Fungal keratitis is a rare but severe cause of infectious keratitis. The poor prognosis of these infections is related both to fungal virulence, decreased host defense, as well as delays in diagnosis.

#### P 50 In vitro mating of the *Cryptococcus neoformans* species complex isolated in Tunisia

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**Introduction:** *Cryptococcus neoformans* and *C. gattii* are two closely related basidiomycetes yeast species. Their sexual development and virulence is controlled by one locus with two alternative functional alleles: MAT  $\alpha$  and MAT a.

The aim of the present study was to evaluate the ability of Tunisian isolates of the *C. neoformans* species complex to mate *in vitro* with tester strains and produce structures associated with the mating process on V8 (TM) agar and the new medium Blackberry agar.

**Materials and Methods:** 10 clinical and 31 environmental of *C. neoformans* isolates were studied. The mating types of these isolates was previously determined by PCR, using MAT  $\alpha$  and MAT a specific primers and revealed that 2 isolates were mating type a (5%) and 39 were  $\alpha$  (95%).

**Results:** The results showed that 25 isolates were able to mate *in vitro* on blackberry agar (24 type  $\alpha$  and 1 type a). All mating competent serotype A strains were mating type  $\alpha$  and the mating competent serotype D strains were mating type a. We have also demonstrated for the first time that Blackberry medium mimics V8 (TM) juice medium in sexual development assays and was even more suitable for *in vitro* mating and more able to increase the ability of strain mating (61%) versus to V8 agar (53.6%) ( $p=0.03$ ).

**Conclusion:** This is the first time in North Africa that the *in vitro* mating of *C. neoformans* species complex was observed. We have confirmed that *C. neoformans* Mat  $\alpha$  clinical isolates was more virulent and fertile able to mate in most cases.

#### P 51 Study of air fungal flora in operating theatres of UH Sfax

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**Introduction:** It is established that the biocontamination in hospital is a major risk for vulnerable patients and for some places where are practiced invasive acts. Controlling this contamination which affects safety of patients is necessary. The aim of this study was to determine the epidemiological and ecological air fungal flora in our hospital environment: burns unit and operating theatres.

**Materials and Methods:** Air samples from different operating rooms and corridors of operating theatres and



the burns unit were monthly performed by a SAS Super 180 biocollector. The colonies were identified basing on macroscopic and microscopic characteristics. Measurements of temperature and humidity were taken by a thermohygrometer.

**Results:** Of 548 air samples made, 423 (77. 2%) were positive with an average fungal concentration of 23. 3 cfu/m<sup>3</sup> (range 5-115 cfu/m<sup>3</sup>). The temperature was 24. 2°c (17. 2-29. 4) and the humidity was 54. 2 (24. 9-72). The genus *Aspergillus* was the most isolated (47%), of witch *A. niger* was the most frequent species (57. 8%) followed by *A. flavus* (10. 3%) and *A. versicolor* (10. 2%). *Penicillium* ranked second (21%), followed by *Cladosporium* (12%), *Syncephalastrum* (4%), *Rhizopus* (3%), *Fusarium* (2%) and *Scopulariopsis* (1%). Other fungi were rarely identified (<1%): *Alternaria*, *Chrysosporium*, *Paecylomyces*, *Absidia*, *Mucor* and *Rhizomucor*. Analysis of seasonal variation of fungal concentrations showed significant increase in autumn in the various studied departments.

**Conclusion:** The target level of 10 cfu/m<sup>3</sup> recommended by NF S90-351 has been exceeded during the study period in our various operating theatres and burns unit. This ranks us in the alert level and sometimes action level. This study gave a precious help for intervention and administrative decision in our university hospital. The various recommended corrective actions essentially the complete bio-cleaning, the cleaning of air ducts and filter changes were approved.

**P52 Contribution to the research of nosocomial infections of fungal origin to maternity services and Nephrology of University Hospital of Tlemcen**

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Fungal infections take place from the complications of subjects at high risk hospitalized, which is why we considered research of nosocomial infections of fungal origins to maternity services and Nephrology of University Hospital of Tlemcen

The incidence of nosocomial infections of fungal origin is largely unknown until the present time. In effect very few studies have been done in this domain These infections are at high risk of mortality and morbidity.

The results show that, on 210 samples, 74 yeast strains were isolated. 80% of isolates are *Candida albicans*, there is a greater risk of contamination to maternity services at the nephrology, the latter contains a smaller number of hospitalized patients, and sanitary conditions are more respected in nephrology service.

The amphotéricin B (AmpB) is the standard treatment of systemic mycoses, which is why we used the

AmphotéricinB (Fungizone ®), to test the sensitivity of yeast strains that we isolated, The majority of isolates were sensitive from 1. 5 g / ml AmB. 15% of isolates are sensitive only at 3. 51g/ml AmB, unlike the reference strains of *C. albicans* ATCC 10231 and *C. albicans* IP 444, which are sensitive to 11g/ml AmB.

Face the problem posed by the nosocomial infection of fungal origin strict preventive measures must be taken to limit the cases.

**P53 Epidemiology and alteration types of medical implants in ICU**

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**Introduction:** The diagnosis of catheter-related candidiasis is difficult; however, the differentiation between catheter infection (or other medical implant devices) and a simple contamination is essential to establish an antifungal treatment. Though, the methodology used for this type of studies is that of Brun-Buisson (1987); however, it was examining catheters alterations caused by bacteria. So, we wanted to evaluate this method so as to the yeast cells of *Candida* spp.

To evaluate the various alterations types of catheters (contaminations, colonization and infections) and their corresponding rates, as well as the responsible yeast species, we conducted our study between February 2011 and Jun 2011 in the ICU of Sidi Bel Abbes University Hospital Center (Algeria)

**Materials and Methods:** We realized this study in the ICU between February 2011 and Jun 2011. The sampling was performed from implanted catheters and intubations for 48 hours and more. Candidemia was considered nosocomial when it first occurred more than 48 hours after hospital admission. Other samples were taken by swabbing patient's tongue. For the samples transport to the laboratory, a refrigerant bag was used.

**Results and discussion :** A total of 63 samples were taken from ICU during the study period, 12 strains (19, 04%) of *Candida* spp. were isolated (three *C. albicans* and nine *C. glabrata*). We reveal that the proportion of non-albicans *Candida* species, especially *C. glabrata* was increased in nosocomial infections.

On the other hand, three different types of alteration of Implanted Medical Devices were observed; likewise in our study, six (9. 52%) contaminations, two (3. 17%) colonizations and three (4. 76%) infections of Implanted Medical Devices.

To conclude, the present study is the first survey in an ICU population in Algeria; it demonstrated that Brun-Buisson's method seems to be appropriate for these studies.

**P 54** *Chlamydospore, a new structure in Candida albicans biofilms formed in catheters*

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**Introduction:** One distinct characteristic of *C. albicans* is its ability to produce chlamydospores that are formed on the ends of elongated suspensor cells attached to hyphae, and as it is known, the chlamydospore is a distinctive morphological feature of the fungal pathogen *C. albicans* that can be formed in nutrient depletion and oxygen-limited environments. Indeed, according to, the chlamydospore has been reported in clinical specimen and the oxygen decreased in the biofilms.

**Materials and Methods:** Our study was done within this framework at the hospital Chabane Hamdoune of Maghnia (Algeria). The work involves isolation of the yeast *C. albicans* from catheters directly after removing them from patients, and testing their ability to form biofilms. The samples were examined using a Hitachi S-4800 field emission scanning electron microscope (FESEM) at the University of Hawaii.

**Results and discussion:** The strain MIFKT4 detached from the biofilm after catheter vortexing for one minute. We observe a dense layer of yeast cells that are detached from the surface of the catheter; we also observe hyphae and pseudohyphae characterizing mature biofilms. Surprisingly, we also observed a different structure from yeast cells and filamentous forms compared to others that we obtained by the SEM, it was found that this structure was unique and not like other structures of yeast blastospores.

**P 55** *Candida albicans biofilms and their risk in nosocomial infections; a first study in Algeria*

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**Introduction:** The hospital can be considered as an ecosystem where the patient is in contact with the microbial world and faces the risk of contracting an infection that is termed the nosocomial. Some yeasts parts of this universe, like *Candida albicans*, are opportunist pathogens. Usage of catheters provides

ample opportunity for *C. albicans* biofilms to set up a nidus for disease that is not easily amenable to conventional antifungal therapy.

**Material and Methods:** The samples were taken from the intensive care units, general surgery, pediatrics, internal medicine and gynecology. These samples were taken from implanted catheters and probes for 48 hours or more; which were taken directly from patients and placed in Sabouraud liquid.

Isolated strains were subjected to the action of AmB. For this, we referred to Ramage et al. 2001 and NCCLS M-27A (13) protocols.

**Result and discussion:** In the present study, 301 samples were taken from the hospital of Maghnia and 51 strains of *C. albicans* were isolated from catheters and probes (16, 94 %). When calculating the rate of isolated strains of *C. albicans* by the number of samples in each department, the ICU came first with 40. 74% followed by gynecology department with 17. 39% and the general surgery department with 15. 79%.

The testing susceptibility to AmB of isolated strains increases along with the formation of *C. albicans* biofilms, but after the maturation phase (48 hours), it is growing so secondary compared to the previous phases.

**P 56** *Invasive fungal infections and breakthrough fungemia among patients with allogeneic stem cell transplantation (SCT): a retrospective study of the Centre National de Greffe de Moelle de Tunis*

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**Introduction and objective:**

-Hematopoietic stem cell transplant patients are at a high risk of invasive fungal infections (IFI).

-Aim: Study the profile of the IFI and the efficacy of antifungal therapy (AF) in this population.

**Patients and Methods:**

- Retrospective study carried in patients allografted in the department of hematology and transplantation of the National Center for Bone Marrow Transplantation in Tunis, during a period of two years (1st January 2009 to June 30, 2011).

- Criteria for diagnosis of IFI: EORTC / MSG 2008

**Results:** One hundred and five patients underwent allogeneic SCT. 62% were male with mean age of 24 years (4, 49). Seventeen IFI were reported in six patients (15%): 10 IFI (6 fungemia and 4 probable pulmonary aspergillosis) and 7 possible aspergillosis (4 pulmonary, 1 cerebral and 2 sinus). The fungemia were related to *Candida parapsilosis* (2 cases), *Rhodotorula* (1 case),

Guilliermondii (1 case), *Candida glabrata* (1 case) and *Candida untyped* (1 case). Five fungemia of 6 are breakthrough fungemia (BF): 3 under Voriconazole (*C. parapsilosis*, *C. glabrata*, *Guilliermondii*) and 2 under Fluconazole (*Rodhotorula* and *Candida untyped*). BF occurred at a median of 15 and 74 days after starting AF treatment, respectively with Voriconazole and Fluconazole. The evolution of all cases with fungemia was favorable with AF (second or third line). For aspergillosis: one patient died from possible cerebral aspergillosis, improvement was noted for the other patients after a mean treatment duration of 82 days (5, 161).

**Conclusion:** The emergence of breakthrough fungemia is a frequent complication in patients receiving AF prophylaxis. Despite the invasive nature of IF and the fragility of the host, only one death (6%) was recorded.

**P57 Mucormycosis in a patient with leukemia A case report**

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**Introduction:** Mucormycosis is a cosmopolitan infection, due to Mucorales of the class of Zygomycetes. It mainly involves in diabetic with ketoacidosis or immunocompromised patients causing a very severe and life-threatening disease.

We report a case of mucormycosis in a patient with leukemia and discuss diagnostic and therapeutic features of mucormycosis in neutropenic patients.

**Case Report:** The case concerns a 43-year old woman, with a history of acute lymphoblastic leukemia type III who was hospitalized in September 2011 in Clinical Hematology Service in Farhat Hached Hospital, in Sousse for a course of chemotherapy. At 11th day of hospitalization, the patient developed a right eye swelling and necrotic lesion in the nose which quickly progressed to pansinusitis with preseptal cellulitis. The mycological examination of nasal skin biopsy confirmed the diagnosis of mucormycosis as showing the presence of mucorale hyphae on direct examination and isolation of *Absidia corymbifera* in culture. Despite the early initiation of amphotericin B, the evolution was rapidly fatal with orbital and brain extension and the patient ultimately died

**Conclusion:** Mucormycosis is a rare but life-threatening infection. It occurs in debilitated and/ or profoundly immunosuppressed patients. Diagnosis is often easy. In contrast, the disease is very difficult to treat and outcome is associated with a high mortality.

**P58 Invasive fungal infections in renal transplant recipients: About 9 cases**

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**Introduction:** The incidence of invasive fungal infections has steadily increased in renal transplant patients. The diagnosis of those infections is difficult and their prognosis is often pejorative. Our objective was to report the cases of invasive fungal infections in renal transplant recipients in our hospital and to identify the main fungal agents.

**Materials and Methods:** It is a retrospective study of invasive mycoses reported in our CHU over a period of nine years from 2002 to 2011.

**Results:** Among 133 renal transplant patients, we collected 9 cases of proven invasive fungal infections (6.7%). There were 5 men and 4 women. The average age was 34 years. The infection was late ( $\geq 3$  months) in 89% of patients. Prolonged corticosteroid and immunosuppressive therapy were the main risk factors (100%) followed by CMV infections (44.4%), neutropenia, broad spectrum antibiotics, and transplant rejection (33.3%). Invasive candidiasis were the most frequent (2.2%) with 2 cases to *Candida tropicalis* and 1 case to *Candida glabrata*, followed by invasive pulmonary aspergillosis (1.5%) with 1 case to *Aspergillus flavus* and 1 case to *A. terreus*, cryptococcal meningitis to *Cryptococcus neoformans* (1.5%) and *Pneumocystis jirovecii* pneumonia (1.5%). The evolution under treatment was favourable only in three cases (33.3%).

**Conclusion:** The frequency of invasive fungal infections is underestimated in our country. They are dominated, mainly, by candidiasis. The treatment of these mycoses is difficult and their evolution is often fatal. Multidisciplinary collaboration for prevention, early diagnosis and proper management are needed to improve their prognosis.

**P59 Bacterial septicemia in hematology department**

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**Background:** Infectious complications represent an important cause of morbidity and mortality in cancer patients, especially in those receiving chemotherapy and neutropenic



**Patients and Methods:** Two hundred nineteen bacterial septicemia occurring in hematology from 2000 to 2011 were retrospectively analyzed. Most of patients had hematologic malignancies. The underlying disease, the degree of neutropenia, the association of septic factors with the bacteremia, the responsive microorganisms and their evolution during hospitalization were studied as prognosis factors.

**Results:** Median age was 27 years, range (1-82), 61.6% were male, 38.4% were female. About the half of our patients (49.3%) had acute myeloid leukemia, 24.7% had acute lymphoblastic leukemia, 50% received aggressive chemotherapy. 86.3% of patients were neutropenic with less than 500 PNN/mm<sup>3</sup> in 75% of cases. The occurrence of major septic focus (pulmonary, perineal infection diarrhea, ORL, or cutaneous extensive focus) was observed in 40.2%. A study of the distribution of the bacterias showed a predominance of Gram negative bacillus (75.8%), *Klebsiella pneumoniae* was the most frequent 29.7% followed by *E. Coli* (18.3%). Cocci gram positive bacterias represent only 24.2%. The overall mortality was 19.2% with 8.7% of them due to septicemia.

**Conclusion:** Early prediction of bacteraemia in patients with febrile neutropenia might be important to tailor empirical therapy to cover the increased risk.

**P 60 Epidemiology of Infectious complications in haematology oncology patients: about 96 cases**

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**Introduction:** In haematology oncology patients, defects of the immune response arise from several factors acting either concomitantly or sequentially. Major roles are played by the underlying disease and the effects of the medical therapies developed to treat it.

**Methods:** We revised all medical charts of patients admitted to the haematology oncology ward from 2003 to 2010, presenting documented (either clinically or microbiologically) infectious complications.

**Results:** 59 patients were admitted to the haematology oncology ward presenting infectious complications (39 males; 20 females). They developed 96 infectious episodes, with an average age of 51 years. The most frequent underlying disease were lymphoma (16 cases), acute leukaemia (13 cases), multiple myeloma (11 cases), and chronic leukaemia (5 cases). In 68 cases, patients were undergoing chemotherapy in 38 cases they were taking corticosteroids and in 36 cases, patients were

neutropenic. We registered 28 episodes of septicemia, 21 episodes of urinary infection and 20 episodes of pulmonary infection. The most common germs were positive Gram cocci (17 cases) and negative Gram bacilli (11 cases). Opportunistic infections were found in 10 cases (*CMV pneumoniae* = 1 case, pulmonary aspergillosis = 3 cases, pneumocystosis = 2 cases, tuberculosis = 3 cases and *Geotricum capitatum pneumonia* = 1 case). Most cases were treated successfully (82 episodes). 14 patients died (23.7%) either from septic shock (10 cases) or respiratory distress (3 cases) or macrophage activating syndrome (1 case).

**Conclusion:** Despite major improvements in the treatment of haematology oncology diseases, mortality in these patients is still important, partly due to infectious complications especially those caused by opportunistic germs. An increasing frequency of infectious complications is noticed, this is probably due to the use of more invasive methods such as central catheters and more intensive chemotherapy.

**P 61 Bacterial infections in febrile neutropenic episodes.**

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**Background:** The febrile neutropenia is defined by the presence of fever over 38.5°C once or 38°C 3 times in less than 24 hours in a context of neutropenia (neutrophils <500/mm<sup>3</sup>). Chemotherapy of acute leukemia exposes to neutropenia of long duration (>7 days) which promotes the risk of infection. The aim of our work is to analyse the clinical, biological and microbiological features of 90 febrile neutropenic episodes.

**Patients and Methods:** 30 patients (14 female et 16 male) with a median age of 37 years are followed in hematology department for acute leukemia (myeloid leukemia in 67% of cases and acute lymphocytic leukemia in 37% of cases) during the period extending from January to December 2011. These patients were treated with chemotherapy according to the protocol of acute myeloid leukemia in 67% of cases and according to the protocol of acute lymphoid leukemia in 37% of cases.

**Results:** 90 febrile neutropenic episodes were observed (34 during the cures of induction and 56 during the cures of consolidation). The average duration of aplasia was 13.5 days (9 - 43 days). The systemic inflammatory response syndrome, the sepsis and the severe sepsis were observed in 64%, 34% and 3% respectively. The clinical documentation of these episodes was found in 17 cases (18%): veinite in 9 cases, cellulitis of the face in 2 cases, perineal infection in 5 cases and necrotizing fasciitis in 1 case. The bacteriological documentation of these

episodes was found in 25 cases (27%): *Escherichia coli* in 8 cases, *Klebsiella pneumoniae* in 8 cases, streptococcus in 3 cases, *Staphylococcus aureus* in 2 cases, *Staphylococcus epidermidis* in 2 cases and *Pseudomonas aeruginosa* in 2 cases. 44% of germs were sensitive to  $\beta$ -lactams. All patients had a first-line empiric broad spectrum antibiotics by tazocilline and ciprofloxacin. Antibiotic therapy is secondarily adapted to the patient's clinical course and bacteriological documentation. Only 2 patients had a surgical treatment. The outcome was favorable in 96, 6% and fatal in 3, 4%.  
**Conclusion:** Febrile neutropenia is a serious and potentially fatal complication of chemotherapy that requires a rapid and appropriate treatment.

**P 62 Fever and neutropenia in children with hematological malignancies**

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**Background:** Febrile neutropenia in patients with hematological malignancies is a common complication associated to chemotherapy and can be the first manifestation of a potentially lethal infection.

**Methods:** In order to adapt our clinical practice to international clinical guidelines, we performed a retrospective review of clinical charts of all children admitted to the Hematology department at Farhat Hached hospital, from January 1, 2011 to December 31, 2011, with hematological malignancies, fever and neutropenia.

**Results:** A total of 110 febrile neutropenic episodes occurred in 39 children and in 70% (77/110) of them an infectious focus could be identified; respiratory infections were the most common (21/110). A microorganism could be identified in 23 /57 (20, 9%) of episodes, 13 recovered from blood cultures (38;4% *Staphylococcus Aureus*, 30, 7 % *Klebsiella* species, and *Enterococcus* sp, *Candida albicans* y *Pseudomonas aeruginosa* in 7% each one). One hundred three episodes had a favorable resolution, 7 of 110 episodes (6, 4%) resulted in death. Pneumonia diagnosed and mucositis grade 3 or 4 are predictors of mortality.

**Conclusions:** Pneumonia and mucositis grade 3 or 4 at admission identified children with FN at high risk of death; these children may benefit from targeted interventions.

**P 63 Febrile neutropenia and perineal infection: Evolutionary aspects**

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**Introduction:** Perineal infection is a serious complication and becoming increasingly common during febrile neutropenia. Its evolution is sometimes fatal arising under septic shock.

**Patients and Methods:** We report 23 episodes of perineal infection occurred in 17 patients monitored and treated for acute myeloid leukemia in 9 cases, Acute lymphocytic leukemia in 7 cases, and myelodysplastic syndrome in 1 patient, collected over a period of 3 years. The aim of our study is to identify the clinical, bacteriological and evolutive features of this infection in our department.

**Results and discussion:** 17 patients, 9 women and 8 men with a mean age of 27. 7years (range: 5 to 58 years). Perineal infection occurred in all patients in the phase of deep aplasia with neutrophil  $\leq 500$  elts/mm<sup>3</sup>. In 16 patients, the infection was discovered after clinical symptoms and was fortuitous for a single patient. The recurrent episode of infection occurred in 4 patients. A combination of broad spectrum antibiotics was prescribed empirically for all patients when the diagnosis was made regardless of the existence or absence of fever. Blood cultures came back positive in 5 case swith gram-negative bacilli susceptible beta lactamases.

The microbiological sampling returned positive in only one patient. In our series the outcome was fatal in septic shock for 5 patients, for the other patients the outcome was good under antibiotics for 9 patients and after surgical excision for 3 patients.

**Conclusion:** Perineal infection is one of the most challenging locations in the neutropenic due to the rapid progression to cellulitis or even necrosis and the risk of fatal complication: septic shock. This requires the systematic and daily pelvic examination and the prescription of broad spectrum antibiotics

**P 64 Clinical utility and prognostic value of galactomannan in neutropenic patients with invasive aspergillosis**

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Invasive aspergillosis (IA) is a major cause of morbidity and mortality in profoundly neutropenic patients. Delayed diagnosis and therapy may lead to poor outcomes.

**Aims:** The objective of this study was to assess the performance characteristics of the galactomannan (GM) assay in serum and broncho-alveolar lavage specimen for the diagnosis of IA in neutropenic patients with hematological malignancies. We also evaluated the prognosis outcome.

**Patients and Methods:** A total of 1198 serum samples

and 42 BAL from 235 neutropenic patients were tested with a GM ELISA platelia test. We used Cox modeling of time to 6 and 12-week mortality for the GM level at the time of diagnosis (GM0) and GM decay in the week following diagnosis in proven and probable IA patients with >2 GM values.

**Results:** There were 3 proven, 55 probable, and 4 possible cases of IA. The sensitivity and the specificity of GM test were 96.8% and 82.4% respectively. In BAL samples, sensitivity was 86% and the specificity was 93%. BAL GM was more sensitive than microscopy (22.2%) and BAL culture (38.9%). Among the patients with proven/probable IA, serum and BAL GM were in agreement for 92.8% of paired samples. The hazard ratio (HR) of GM0 and 1-week GM decay per unit increase in EIA was 1.044 (95% CI, 0.738 to 1.476) and 0.709 (95% CI, 0.236 to 2.130) respectively.

**Conclusion:** We conclude to good correlation between GM0 and GM decay combination and outcome of IA patients. The GM is a useful tool for the diagnosis and monitoring of the course of IA.

**P 65 Urinary tract infections in renal transplant patients at UHC Mustapha: etiologic agents and antibiotic resistance**

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**Introduction:** Urinary tract infection is a common complication and fearful after renal transplantation and represents its potential evolution toward septicemia which is a major risk to the graft.

**Patients and Methods:** We conducted a retrospective study over a period of 02 years (January 2008-December 2009), 62 patients who underwent a kidney transplant in the thoracic surgery department of the CHU. CBSU were performed by determining the leukocyturia by microscopy, the technique of calibrated loop was used for culturing the urine to determine bacteriuria. For some patients several CBSU were performed. Identification of germs was performed on API system galleries, sensitivity tests were performed as recommended by the CLSI. Data analysis was performed by the software WHONET 5.4 and supplemented by fact sheets.

**Results:** The frequency of urinary tract infections (UTI) in renal transplant patients was 33.87% (21/62). The sex ratio was 2 and the average age of 32 years. The main etiology was dominated by Enterobacteriaceae 09 (42%). The frequency of germ was Escherichia coli 05 (24%), Enterococcus faecium and faecalis 05 (24%) coagulase-negative Staphylococcus 05 (24%), Klebsiella pneumoniae 02 (09%), and Pseudomonas aeruginosa 02 (09%). Two thirds of Enterobacteriaceae resistant to cefotaxime were isolated in their majority were secreting

beta-lactamase extended spectrum (ESBL +). Five Enterococci were isolated, two were resistant to ampicillin. A strain of Pseudomonas aeruginosa was isolated resistant Ceftazidime and Imipenem at the same time. The lack of specificity of survey does not establish the link with UTI.

**Conclusion:** The frequency of urinary tract infection in the graft requires early diagnosis and close monitoring by conducting tests including cyto-bacteriological control, this allows better management of these patients to prevent graft rejection. Compliance with hygiene measures should be considered in these patients.

**P 66 Early infections in children following renal transplant**

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**Background:** Although the rates are markedly decreased from previous decades, infection is the most important cause of early morbidity and mortality following renal transplantation. Surgery is complex and performed a subject whose immunological mechanisms are impaired by end stage renal failure and immunosuppressive drugs.

**Objectives:** The aim of our study was to evaluate the incidence and risk factors of early infectious following renal transplantation in children.

**Methods:** early infectious complications were retrospectively monitored in 82 children receiving renal transplantation at our center from 1992 to 2010.

**Results:** Eighty-two patients were recruited into the study. Thirty of children were girls ninety-two were boys. The median age was 12.6 years.

Twenty patients received the grafts from cadaveric donors and 57 from living donors. Three patients were removed for graft vein thrombosis.

The urinary tract infection was noted in 12 cases, acute lobar pneumonia in 3 cases. Tuberculosis found in one case, peritonitis in one case, septicemia in 2 cases, one is due to Klebsiella, and the other is due to staphylococcus. Unspecified viral infection was found in 7 cases and CMV encephalitis in one case.

**Conclusion:** Due to the unusual nature of the infections and the lack of timely symptom development, the key to patient survival is the prevention of infection.

**P 67 Cerebral Toxoplasmosis in patient with acute biphenotypic leukemia**

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**Introduction:** Cerebral toxoplasmosis is an opportunist severe and rare infection which is due to a reactivation of



an old latent infection. The incidence raises among individuals with weakened immune system (AIDS, Hemopathies, renal transplanted...) and often depends on the seroprevalence of the toxoplasma in the general population. The prognosis remains poor even with an early and adequate treatment.

**Observation:** The case is about a 37 year old asthmatic woman G6P3A3 who was admitted on October 2010 for fever with breast engorgement. The initial exam showed multiple bilateral infracentimetric cervical adenopathies, esophageal candidiasis and a 16cm s plenomegaly. The hemogram noticed Hb=7, 2 (VGM=79, 5 TCMH= 28, 3 CCMH= 35, 6) GB= 2800 (PNN= 17%, Lym= 51%, Mono=6%, Eo= 11%, Blasts= 15% ) Plq=15000. The myelogram showed a blastic cell infiltration at 78% Karyotype: 46, XX with no chromosomal abnormalities. The patient was given Tazocillne empirically and an HyperCVAD cure based chemotherapy was started. The aplasia was obtained on the fifth day. Day 8 of aplasia was marked with the recurrence of fever and the clinical exam showed a veinitis of the superior left member leading to the adjunction of Vancomycine which was maintained till the end of the cure.

The patient was readmitted for a second HyperCVAD based cure. in the meantime the results of the immunophenotype made earlier came out and were in favor of biphenotypic leukemia. The medullar control showed cytological remission. So the patient began an Oncovin, Endoxan, Etoposide, Novontrone and prednison based cure. At day 3 of aplasia, a bilateral facial paralysis with frontal cephalgia appeared. The lumbar puncture showed clear liquid, alb= 5, 9, gly= 0, 4 L=150, H=500 with the presence of blasts. Therapeutic methotrexate based lumbar puncture 1/2D were induced. The evolution was marked with the aggravation of the symptoms and the occurrence of deglutition troubles and paresia of the right hemi-corps. Cerebral MRI showed numerous circular lesions recalling a cerebral toxoplasmosis. The patient underwent a specific treatment based on Malocide and Adiasine with a good evolution but on the twelfth day of the treatment (fifteenth day of aplasia) she presented a high fever with a rapid weakening and died on the same day secondary to a septic choc.

**Conclusion:** Cerebral toxoplasmosis is still a rare entity. The diagnosis is difficult based on clinical, radiological and bacteriological elements. A double therapy (trimethoprim-sulfamethoxazole) is induced, and stereotaxic biopsy is only processed in case of a treatment failure. In patients undergoing an aplastic chemotherapy, the treatment is maintained till the end of the cure to avoid further breakouts.

#### P 68 Infectious pathology in systemic diseases : 77 cases

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**Introduction:** evolution of systemic diseases is often complicated by occurrence of comorbidity, especially infectious. This is due to the immunosuppressed status of these patients, weakened by treatments that are imposed by natural evolution of the systemic disease.

**Methods:** retrospective study reporting infectious episodes among 519 hospitalization of systemic disease patients in the inner medicine department (military hospital, Tunis, Tunisia) from 2003 to 2011.

**Results:** 77 infectious episodes (14. 8 % of the total systemic disease hospitalizations), 24 men and 53 women (sex ratio=0. 45), 50 years old on average [ 17- 86 ]. Average duration of hospitalization: 31 days [7-145 ]. Main systemic diseases: 30 cases of lupus (39 %), 11 cases of rheumatoid polyarthritis (14. 3 %), 11 cases of Behçet disease, 8 cases of Gougerot-Sjögren disease (10. 4 %), 5 cases of scleroderma (6. 5 %), 4 cases of Horton disease (5. 2 %). The infection was bacterial in 84. 4 %, viral in 9. 1 %, mycotic in 5. 2 % and parasitic in a 1. 3 % of cases. Urinary infections were the most frequent (44. 2 %) followed by lung infections [non specific germ = 12 cases, tuberculosis = 5 cases; pneumocystosis = 1 case; aspergillosis = 1 case]. Viral infections were dominated by herpes zoster (5. 2%). Simultaneously to the infectious episode, all patients were under immunosuppressive treatment: corticoids = 54 cases (70. 1 %), immunosuppressive drugs = 21 cases (27. 3 %), biotherapeutic drugs = 2 cases (2. 6%). The evolution was favourable in 74 cases (96 %). On both patients who had developed a toxic shock, one died.

**Conclusion:** our work gives evidence of frequency of the infectious pathology during systemic diseases. Bacterial and opportunistic infections are the most dreaded at these patients in particular during the administration of immunosuppressive agents. Prevention and early detection of these infectious complications are primordial and pass by a meticulous clinical and biological investigation.

#### P 69 Infections complicating patients treated with anti-TNF agents in rheumatoid arthritis

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**Introduction:** Anti-TNF agents have revolutionized the treatment of patients with rheumatoid arthritis. However,

their use is associated with an increased risk of infections. Pyogenic infections (involving the lungs, skin and urinary tract) and tuberculosis reactivation are the more commonly observed infectious complications in patients receiving anti-TNF agents

**Case report 1:** A 48-year-old male was admitted with neck pain radiating to both arms and hands, heaviness and numbness of the lower limbs leading to frequent falls. He had been diagnosed with seropositive, erosive rheumatoid arthritis (RA) more than ten years prior. During that period, he was treated with various therapeutic regimens for RA. He had been under treatment prednisone and methotrexate. Since he continued to have active RA, infliximab was prescribed. On physical examination, there was symptoms of neurological cervical spinal cord compression. ESR was 62 mm 1 h and CRP was 30 mg/dL and peripheral white blood cell count 13000/mm<sup>3</sup>. A cervical MRI revealed infectious spondylodiscitis in the C4–C5 intervertebral disk. He had positive tuberculin skin test (TST) while it was negative before introduction of infliximab. The diagnosis of cervical tuberculosis spondylitis was established. The anti-TNF infliximab was stopped. A treatment was started with anti-tuberculosis agents.

**Case report 2:** We report the case of a 52-year-old female who had been diagnosed with RA more than eight years prior. She had been under treatment prednisone (10 mg/day) and methotrexate. After eight years, she developed pulmonary fibrosis. Methotrexate was stopped. Since she continued to have active RA, etanercept was prescribed. After five months of etanercept treatment, the patient developed fever as well as dry cough and mild asthenia. The patient stated that she was not a smoker. She had tested negative on a tuberculin skin test (TST) conducted before the initiation of etanercept. Another TST was performed, and the result was again negative. She was diagnosed with pneumonia after a chest X-ray and treated with acid clavulanic for 2 weeks.

**Case report 3:** This 41-year-old male was diagnosed with RA and was on prednisone and methotrexate since 18 years before this presentation. He continued to have many joint symptoms, etanercept was then prescribed. He was hospitalized with a 3 days history of swelling, erythema, induration, tenderness and ulceration on the left upper arm. The patient denied night sweating, cough, sputum production, chest pain, or dyspnea. There was no history of antecedent bronchitis, pharyngitis, otitis or urinary infection. He had fever. Physical examination revealed a firm, warm, and diffused swelling affecting the upper arm. A diagnosis of cellulites was made. He received two weeks of cephaloject then pyostacine. Fever and local inflammatory signs regressed.

**Conclusion:** These infectious complications usually occur within the first months of therapy and are important causes of morbidity and mortality in anti-TNF treated patients. It is recommended to rule out infections,

especially latent or active tuberculosis, before the initiation of anti-TNF therapy. However, it is necessary to follow-up closely these patients to detect the possible occurrence of opportunistic infections.

**P 70 Immunodeficiency and infection in children: About 9 cases**

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**Introduction:** The infections represent a major warning signs of immune deficiency; they are the major complications by their recurrence and severity.

**Objective :** Through 9 describe cases of immunodeficiency over a period of 6 years (2005-2010) major infectious events, their epidemiology, treatment and outcome.

**Results:** Nine cases of immune deficiency were collected 3 cases of chronic granulomatous disease, 3 cases of ataxia telangiectasia, 2 cases of Bruton's disease and 1 case of deficit of cellular immunity. There were 8 boys and 1 girl. The average age was 4 years (3 months-14 years). A history of recurrent infections was reported in 77% of cases : Broncho-pulmonary, ENT, chronic diarrhea and oral aphthosis. Serious infections have presented the circumstances of discovery of immune deficiency in 44% of cases (ichtyoma gangrenosum, meningoencephalitis, pneumonia, acute osteomyelitis in Serratia and lung abscess). Of the infectious episodes, impairment breathing was noted in 5 cases (pneumonia, pleuropneumonia, pleuropericarditis and lung abscess), acute osteomyelitis was reported in 2 cases. Other types of infections were mixed (suppurative adenitis, BCG, cutaneous abscess, staphylococcal infection of the face, sepsis, meningitis). All patients required at least once a prolonged antibiotic treatment over 3 weeks. Surgery was necessary in 44% of cases. The death occurred in 33% of cases it was secondary to a severe infection beyond any therapy.

**Conclusion :** The infectious events over deficits immune have certain particularities. Their recognition allows early diagnosis of the deficit to tailor therapy according to the field.

**P 71 Infective endocarditis in a tertiary-care hospital in in Sousse - Central Tunisia**

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**Objective:** To describe clinical, bacteriologic

characteristics, and outcome of infective endocarditis (IE) in Sousse - Central Tunisia.

**Methods:** We conducted a retrospective, descriptive study of cases of IE in patients hospitalized in the departments of Infectious Diseases and Cardiology, Sousse, from January 2005 to December 2011. We included definite and probable IE according to modified Dukes criteria.

**Results:** Thirty patients, 22 males and 8 females (sex-ratio 2,7), mean age 50 years presented with IE. 17 cases (56%) were probable and 13 (44%) were definite. Ten patients (33%) had cardiac risk factors for IE. Fever (27 cases, 90%) and heart murmur (19 cases, 63%) were the most common clinical manifestations. IE was observed on native cardiac valves in 24 cases (80%). Blood cultures were positive in 14 cases (46%). Streptococci were the most common agents (10 cases, 71%), followed by staphylococci (2 cases, 14%). Transthoracic and/or transoesophageal echocardiography detected vegetations in 20 patients (67%). The aortic valve, alone or in combination with other valve(s), was the most commonly affected (14 cases, 47%). The most common initial antibiotic therapy was the association of ampicilline and aminosides (18 cases, 60%). Surgical treatment was necessary in 10 cases (33%). At the end of follow-up, 5 patients (17%) died.

**Conclusion:** In our hospital, IE affects mostly middle-age male adults with predilection for aortic native valve without known cardiac risk factor. Blood cultures are frequently negative. Mortality is high despite appropriate management.

**P72 Native valve infective endocarditis in a tertiary care center in a Tunisian context: Clinical aspects and predictors events**

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**Background:** Despite significant progress made in diagnostic and therapeutic modalities, infective endocarditis (IE) remains a serious affection associated with considerable mortality and morbidity

**Aim of the study:** was to describe the epidemiological and clinical aspects of native valve infective endocarditis (IE) in a Tunisian high-volume tertiary care center and to identify the predictors of outcome.

**Methods and Results:** Demographic, clinical, laboratory, and echocardiographic characteristics were examined in 176 patients who fulfilled the modified Duke criteria for native valve IE between January 1993 and December 2008. Logistic regression analysis was used to identify prognostic factors for death. Mean age was 36.1 ± 7.5 years. Diagnosis was definite in 85% of cases. Median time to diagnosis was 19 days. Rheumatic heart disease

(RHD) was the predominant (47%) underlying heart condition. Mitral valve location was the most frequent seat of IE (37.7%). One or more vegetations were detected in more than 86.8% of cases. The median size of vegetation was >15 mm in 26% of cases. In 84 cases (48.5%), cultures remained negative. Serology was positive in 16 cases, and in 4 cases leaflet culture identified the agent. Causative microorganisms were mainly Staphylococci (n = 42 (24.2%), including 8 coagulase-negative Staphylococcus), and Streptococci (n= 32). Overall mortality was 18.6%. On multivariate analysis, congestive heart failure (hazard ratio = 5.62, 95% CI 1.32 to 12.54, p = 0.008) and large vegetations (>15 mm; hazard ratio = 4.28, 95% CI 1.91 to 11.69, p = 0.004) and neurological complications (hazard ratio = 3.27, 95% CI 1.84 to 9.11, p = 0.002) were predictive of in-hospital mortality.

**In Conclusion:** IE remains a serious disease affecting a young population in Tunisia, with RHD as still the most common underlying heart disease, and it is associated with a high mortality.

**P73 Clinical course and complications of infective endocarditis in patients with congenital heart disease (A retrospective study in a tertiary care center)**

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Despite surgical palliation or definite correction, congenital heart disease (CHD) may remain a potential lifelong risk factor for infective endocarditis (IE) in patients growing up with congenital heart disease (GUCH).

**Objective:** To review clinical data and potential outcomes of IE in paediatric and adult patients with congenital heart disease (CHD).

**Methods and patients:** In a retrospective case study of a tertiary care centre, predisposing factors, clinical, echocardiographic characteristic, long term clinical course and complications of patients with IE and CHD were analysed.

**Results:** Among 290 patients with infective endocarditis, 34 occurred in those with CHD, who fulfilled the DUKE criteria for Infective endocarditis and were treated between January 1997 and December 2011, were identified. Mean age was 18.1 years (range 9 months to 42 years). Predisposing cardiac disorder for infective endocarditis were, previous cardiovascular operation in 15 (44.1%) patients (palliative procedure in



2 and corrective in 13 with use of foreign material in 4), unoperated congenital defects in 10 cases (restrictive ventricular septal defect (7), univentricular heart with pulmonary stenosis (3), aortic bicuspidy (4), laubry and Pezzi syndrome(2), persistant ductus arteriosus (1) and shone syndrome (1). Procedures preceding IE were dental and endoscopic procedures without recommended Antibiotic prophylaxis in 13 patients (38, 3%), cardiac surgery in 6 (17. 6%). Sites of infection were left sided in 10 patients (29 %), right sided in 10(29%), right and left sided in 4, ventricular septal defect in 4, prosthesis in 6. Echocardiographic examination, revealed cardiac vegetation in 25 patients (73%), periannular abscess in 3 patients. Blood cultures were Positive in 23 patients (70%), staphylococcal or streptococcal species were cultivated in most cases as causative micro organisms. 18 patients presented at least one early complication (77%). Frequent complications were embolic events. Empirical treatments were penicillins followed by vancomycin and cepheims. Emergency surgery was needed in 9 patients (26%), heart failure (5 patients) and vegetation size (1), annular abscess (1) were the most frequent indications. The hospital mortality was heigh17% (6 patients), 3 among patients who received medical treatment alone and 3 among those who underwent surgery.

**Conclusions:** Patients with IE and CHD show a broad clinical spectrum of cardiac and extracardiac complications, with potential risk of death and a high number of re-operation. It is mandatory to establish well formulated recommendations for management of IE in paediatric and adult patients with CHD based on an interdisciplinary cooperation and large cohort studies.

**P 74 Prosthetic Valve Endocarditis: Experience of fifteen years in Tunisian Department of Cardiology**

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**Introduction:** Prosthetic valve endocarditis (PVE) is the most severe form of IE. It occurs in 1–6% of patients with valve prostheses known by very high mortality rate (20–40%). It accounts for 10–30% of all cases of IE and affects mechanical and bioprosthetic valves equally. PVE still associated with big challenges in diagnosis and therapeutic strategy. The aim of our study is to highlight clinical, echocardiographic and microbiologic characteristics in and to analyze patients' outcome in department of cardiology in Sfax from 1996 to 2011.

**Methods:** All cases of PVE were included in this

retrospective study since 1996. Epidemiological, clinical and echocardiographic findings, as well as microbiological and therapeutic data were processed.

**Results:** During 15 years, 292 patients were admitted for endocarditis among them 101 had PVE (34. 5 %). Sex Ratio was 1. 3 (57 men and 44 women). Mean age was 40. 9 +/-16 years ranging between 1 and 76 years. 53 cases were classified as early PVE (52 %). 79 patients had definite PVE (78 %). Mean delay to diagnosis was 4. 23 +/-5 days. TEE had revealed prosthetic vegetation (66 patients), prosthetic dehiscence (17 patients) and annular abscess (6 patients). Blood cultures were negative in 65 %. Causative microorganisms were Staphylococcus spp (13 patients) and Streptococcus spp (7 patients). Mean duration of treatment was 46+/- 36 (ranging between 1 and 220) days. 35 patients underwent surgery with mean delay of 24 days. 8 patients had complications after surgery mainly endocarditis relapse (75%) and 16 patients died (15. 8 %).

**Conclusion:** Carrying a big rate of mortality, PVE remains a dreaded complication after valvular replacement. The best therapeutic option is still debated. Careful considerations are required to analyze deeply all factors associated with poor prognosis in PVE. Further studies are in need.

**P 75 Prosthetic valve endocarditis: management strategies and prognosis: An analysis in a tertiary care centre in Tunisia**

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**Background:** Prosthetic valve endocarditis (PVE) is a rare and serious complication after heart valve replacement; its optimal management strategy, though, still needs to be defined.

**Objective:** To study the clinical, microbiological and echocardiographic characteristics of PVE and to analyse the influence of the adopted therapeutic strategy (medical or surgical) on short- and midterm outcome in a tertiary care centre in a developing country (Tunisia).

**Methods:** All cases of PVE treated in our institution between 1993 and 2008 were retrospectively analysed according to the modified DUKE criteria.

**Results:** A total of 41 PVE episodes were diagnosed (22 men and 19 women), mean age was 39. 14 years. Twenty-three patients (56. 09%) were exclusively medically treated, whereas 18 (43. 9%) were treated by a combined surgical and medical strategy. Indications for surgery were haemodynamic deterioration in 12 patients (30%), annular abscess in eight (19%) and persisting sepsis in 21 case (51%). In comparison with those from the medical group, operated patients had a longer delay to diagnosis (p=0. 035), were more frequently in heart

failure ( $p=0.002$ ) and experienced more early complications ( $p=0.03$ ); they also more frequently had prosthetic dehiscence ( $p=0.02$ ), annular abscesses ( $p=0.01$ ) and vegetations  $>15$  mm ( $p=0.02$ ). Conversely, no differences were found between the groups in terms of age, sex, or nature of involved organisms. In-hospital mortality was 19.5%. Somewhere else, the medium and long-term evolution was good.

**Conclusion:** PVE is a very serious condition carrying high mortality rates regardless of the adopted strategy. Our study demonstrates that, in selected patients, medical treatment could be a successful and acceptable approach.

#### P 76 Pacemaker Lead Endocarditis

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**Introduction:** Pacemaker (PMK) Lead Endocarditis is a rare complication of pacing. It is also a serious condition noted for causing difficulties in patient management. The generator pocket, the pacing leads, or both may be involved. The aim of this work is to report the clinical and the microbiological features, the management and the outcomes of PMK infection in Tunisian department of Cardiology.

**Methods:** We report the observations of nine patients implanted with PMK between 1993 and 2011, in our department and then diagnosed as device infection.

**Results:** It is about 5 men and 4 women. The mean age was 68 years (63-84). We used single chamber PMK in 7 patients and a dual chamber in 2 patients. Seven patients had a history of recurrent interventions at the pocket site before the diagnosis. The mean duration between the last manipulation and onset of symptoms was 21 months. Blood cultures were positive in 6 patients mainly for *Staphylococcus* spp. (*epidermidis* and *aureus*). One patient had an electrode culture positive for *Staphylococcus aureus*. Echocardiography was performed in all patients and showed vegetation over the tricuspid valve associated to vegetation attached to the ventricular lead in 2 patients and only vegetation over the electrode in 3 patients. Pulmonary scintigraphy was performed in 6 patients and it showed pulmonary embolism only in 4 cases. Four patients were treated only by antibiotic. In 3 patients, we extracted the whole device by transvenous traction and we implanted a new PMK in the contralateral region. In 2 patients, we achieved a surgical extraction and we implanted epicardial electrodes but they died short time again from

renal dysfunction. 6 patients had uneventful follow up, 2 patients were died and in one case, we had noted a new bacteremia with false Osler node and persistent smaller vegetation.

**Conclusion:** We emphasize the importance of echocardiography for early diagnosis and for driving treatment based on appropriate antibiotics and PMK removal. This is a rare but life threatening condition. So, we recommend pacing in the best aseptic conditions and reducing interventions on the pocket site.

#### P 77 Prognosis of endocarditis among pregnant women with mechanical heart valves.

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**Introduction:** Pregnancy in woman with heart valve disease requiring valve replacement is a high risk pregnancy either for the mother and for the child to be.

**Materials and Methods:** A retrospective study conducted jointly at the Hospital Farhat Hached of Sousse of 96 pregnancies in women with mechanical heart valves on a 20-years period from 1st/01/1990 to 31/12/2009.

**Results:** We documented a mechanical valve endocarditis during pregnancy in 2 cases or 2% of pregnancies.

First observation: 25 years patient with a Starr Edwards mitral prosthesis hospitalized at 32 weeks of gestation (WG) to relay AVK by heparin. She gave birth to a stillborn at 34 WG without antibiotic prophylaxis. The delivery was complicated by a retained placenta. Twelve hours later, the patient developed a sepsis syndrome. The Trans ThoracU made 24 hours after the onset of fever showed no vegetation. 36 hours later, the patient developed a severe hemorrhagic cerebral stroke and died. A *Klebsiella pneumoniae* was isolated in blood cultures.

Second observation: 23 year old patient carrying a Starr Edwards mitral prosthesis was hospitalized at 32 WG for hemoptysis with overdose of AVK. A week later, she had a premature delivery with still birth. Antibiotic prophylaxis was made by Totapen® and Streptomycin®. The patient developed a sepsis syndrome 2 days later. A *Klebsiella pneumoniae* was isolated in blood cultures. TTU showed a small vegetation without prosthetic dysfunction. She was treated with poly antibiotics without surgery. The outcome was favorable.

**Conclusion:** Infectious endocarditis is a complication that became rare but that is still very threatening in pregnant women with mechanical prosthesis who should receive draconian antibiotic prophylaxis and should be regularly monitored jointly by gynecologist and cardiologist.

**P 78 Infective endocarditis in hemodialysis patients: clinical presentation and outcomes**

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**Aim:** Infective endocarditis is one of the most serious complications of bacteremia in patients undergoing chronic hemodialysis and is more frequent than previously recognized. The aim of our study was to describe the clinical characteristics, outcome, and factors predicting mortality of infective endocarditis in hemodialysis patients.

**Methods and Results:** In this retrospective review, all patients on chronic hemodialysis admitted to four Tunisian cardiology centers with infective endocarditis over a 11-year period (2000 to 2011), were identified. Modified Duke criteria were retrospectively applied, and patients fulfilling the criteria for definite endocarditis were included in the study.

16 patients on hemodialysis with definite endocarditis were identified. The predominant type of vascular access was Arteriovenous fistula (81%). The predominant organism was *Staphylococcus aureus* (67%). The most frequently infected valve was mitral (49.3%), followed by tricuspid (21.7%) and aortic (10.1%) valves. The cardiac and neurologic complication rates were 50% and 40%, respectively. Seven patients underwent valvular heart surgery. The overall in-hospital mortality was 31.7%. No recurrences of Infective endocarditis were recorded in the survivors. More patients who had surgery survived than patients who did not.

**Conclusion:** The prognosis of infective endocarditis in hemodialysis patients is poor, with surgery serving as an independent predictor of survival.

**P 79 Infective endocarditis in elderly patients: clinical, echocardiographic features and prognosis**

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Infective endocarditis (IE) is more and more frequent in

elderly persons. The influence of age on the clinical presentation and on the prognosis of IE is unclear. The aim of the study was to define the clinical, echographic, and prognostic characteristics of IE in a population of elderly patients in a tertiary cardiology department.

**Methods and Results:** Our study was retrospective including 61 patients older than 60 years from 2000 to 2011 admitted in our Tunisian Cardiology Center.

Streptococci and staphylococci were the predominant organisms (65%). Underlying degenerative valvular disease and the presence of a prosthetic valve were the most important risk factors predisposing elderly persons to IE (54%, 28%). Clinical features included fever in 80% of cases and embolic events in 32% of cases. Transthoracic echocardiography vegetation diagnosis is limited by the presence of valvular calcification and the prosthetic valves.

The Transoesophageal echocardiography was necessary in all cases. All patients were treated medically and only 2 patients were surgically managed. In-hospital mortality was 15%.

**Conclusion:** The age itself is not a poor prognosis, and should not be used prejudicially in denying an early and aggressive treatment of the patients with IE.

**P 80 Infective endocarditis in childhood: a seventeen-year experience**

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**Introduction:** Infective endocarditis (IE) is defined as an infection of the heart's endocardial surface. This disease is rare in childhood. The purpose of this study was to determine the epidemiology, clinical features, treatment and outcomes of infective endocarditis (IE) in this population.

**Methods:** a retrospective descriptive study was performed involving ten patients treated for IE at our department, between 1994 and 2011. Duke criteria were used to retrospectively evaluate the diagnosis of IE in these cases.

**Results:** the mean age at onset of IE was 5 years 9 months (19 months -13 years). Five children had congenital heart disease which three were operated: septal defect in 2 cases, tetralogy of Fallot (2 cases) and double outlet right ventricle (1 case). The onset was subacute in 7 cases. Fever was the most common symptom (9 cases). Echocardiography showed evidence of vegetations in six patients. Mitral valve was affected in three of these cases. Microbiological diagnosis was positive in five cases: *Staphylococcus aureus* (3 cases) and *Acinetobacter baumannii* (2 cases). Broad spectrum intravenous antibiotic therapy was instituted in all cases. The median duration was 35 days. Four patients died of refractory septic shock.



**Conclusion:** IE is an uncommon infection in childhood and occurs primarily in patients with congenital heart disease. Despite advances in medical, surgical, and critical care interventions, infective endocarditis remains a disease that is associated with considerable morbidity and mortality.

**P 81 Perivalvular abscess and infective endocarditis: Beware of this dangerous duo**

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**Background:** Perivalvular abscess is an ominous development in patients with infective endocarditis. There is little information concerning the long-term outcome of these patients.

**Methods:** Patients admitted to a tertiary care centre in Sfax between January 1996 and December 2011 because of infective endocarditis complicated by perivalvular abscess were identified by chart audit and by review of the transesophageal echocardiography database. The patients were followed for at least 1 year to determine cardiac complications, late cardiac surgery, long-term outcome and functional status.

**Results:** twenty-three consecutive patients with infective endocarditis and perivalvular abscess (19 men and 4 women; mean age 39. 31 [14-70 years] were identified; 7 had native valve endocarditis and 16 had prosthetic valve endocarditis. Of the 23 patients, 18 had cardiac surgery during the hospital stay; 7 died in hospital, and 2 died during follow-up. Five patients received medical treatment alone; one died in hospital, and none died during follow-up. The medically treated patients had less severe heart failure than the surgically treated patients ( $p= 0. 12$ ), but the 2 groups were similar in age and infective organisms.

After a mean of 1. 23 years of follow-up, the cumulative death rate was 44%; survival was similar among the medically and surgically treated patients. The survivors were younger than the nonsurvivors ( $p = 0. 04$ ).

**Conclusion:** Patients with infective endocarditis and perivalvular abscess had a high rate of death after hospital discharge and a high incidence of complications of perivalvular abscess, despite modern approach as well as on medical or surgical treatment. It requires therefore a strict monitoring of patients with infective endocarditis.

**P 82 Group Streptococcus endocarditis**

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**Introduction :** when discovered in 1935, G streptococcus was considered as nonpathogenic. Since a few years, it is made responsible for diverse types of infections who remain rare, however.

**Methods:** We report a case of certain G streptococcus infectious endocarditis, in a patient hospitalized in the department of inner medicine of the military hospital of Tunis, Tunisia.

**Results:** 64-year-old, hypertensive patient, hysterectomised in 1998 for uterine neoplasia. Initial symptomatology consisted of acute fever, change of the general state and progressive dyspnoea evolving for a week before admission. The patient was initially hospitalized in cardiology for acute oedema of the lung with tachyarrhythmia, quickly halted. She was, then, transferred to our department. The first examination found fever 39°C, normal neurological examination, normal cardiac and lung auscultation and soft hypogastric sensibility. Gynecological examination was normal. There was no appeal towards an infectious front door. The patient had biological inflammatory syndrome and hyperleukocytosis made of polymorphonuclear neutrophils. 2 hemocultures were positive with G streptococcus. Cardiac transthoracic ultrasound was normal and so was the radiography of the thorax and the abdominal ultrasound. The patient was treated by cefotaxim and gentamycin. Evolution was made of change of the general state, onset of a heart murmur and renal insufficiency. A cardiac transesophageal ultrasound objectivizes an abscess of the small mitral valve attesting of the diagnosis of infective endocarditis. The surgical indication was rejected and patient was transferred in intensive health care unit where she died in a context of toxic shock with cerebral thrombophlebitis.

**Conclusion:** G streptococcus endocarditis is rare but serious. Its seriousness is due to virulence of the microorganism and to frequent fragile ground during these infections. It seems relevant to propose transesophageal ultrasound to detect endocardial infringement in any G streptococcus septicemia, even in absence of heart murmur or anomaly in transthoracic ultrasound

**P83 Endocarditis on pacing device due to *Pseudomonas aeruginosa***

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**Background:** Infective endocarditis on pacemaker devices is rare but constitutes a frightening complication, especially when the causal germ is nosocomial. We report a case of an uncommon condition: *Pseudomonas aeruginosa* endocarditis.

**Observation:** A 58 year-old patient, with non-insulin dependent diabetes, hypertension, and who was carrying a cardiac pacemaker since four years, was admitted to our department for infectious syndrome, 14 days after battery replacement. On physical examination, the patient was asthenic and his temperature was 38.5°C. Cardiac examination showed systemic arterial pressure at 120/60mmHg. No heart murmur or heart failure signs were noted.

Laboratory tests revealed an important inflammatory syndrome: White blood cell count was 15200 elements/mm<sup>3</sup> with neutrophilic predominance, C-reactive protein level was 199 IU/ml and there was a normochromic normocytic anemia of 10.4 g/dl. Transesophageal echocardiography performed the first time hasn't shown visible vegetations but noted a thick aspect of endocardial leads. The second ultrasound examination noted the appearance of vegetation on both probes. *Pseudomonas aeruginosa* was isolated from three sets of blood culture.

The patient was treated with intravenous imipenem 4g a day. Amikacin, 1g a day, was given intravenously for two weeks and then was replaced by Ciprofloxacin. The percutaneous retrieval of pacing catheters was not performed due to the high risk of the intervention.

The evolution was favourable under antibiotherapy during 40 days, but after the antibiotics were stopped, the patient developed a septic shock requiring an emergent surgery. The patient died 14 days after intervention following a neurological complication.

**Conclusion:** Pacemaker infective endocarditis is a rare (the incidence varies between 0.13% and 19.9%), severe and potentially lethal infection which is well illustrated in our case. Its management is often difficult especially when it is due to a nosocomial germ. Moreover, *Pseudomonas* endocarditis is an acute aggressive infection, poorly responsive to antibiotics, that's why the surgery extraction of infected device should be considered immediately.

**P84 Pancytopenia indicative of endocarditis: about a case.**

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Department of pediatric infectious diseases EHS canastel Oran

**Introduction:** The sub acute endocarditis is the starting point of septicemia endocarditis consequence of a court of bacterial valvular endocardium of frequency occurs mostly on the previously injured left heart.

Case presentation: A girl of 14 years with a history of congenital IVC stop allowed for investigation of severe anemia and fever progressing. Its history goes back three months by an oscillating fever especially at night with night sweats and weight loss these symptoms were isopened by a violent lumbago which required taking anti inflammatory drugs. Here parents notice the installation of a pale improvement of lumbago, cough and fever emphasis ago 5.

Clinical review: T 38.9 °, TA 08/05, 120 c tachycardia / tachypnea m 30 c / min, Mucocutaneous pallor frank, there is a Breath 4/6 by steam, a spontaneous pain and mobilization of the shoulder to the musculoskeletal examination but without signs of arthritis, and crackling rales pulmonary to both bases

Paraclinical Bicytopenia original HB 7000 plate 5. 8 GB 10900 CRP positive, H1 Vs 121 and 131 H2 Wright and blood culture negative and BK IDRt negative

radiology TTX bilateral heterogeneous opacities 0.5 ICT Cardiac ultrasound objectified vegetations on the tricuspid valve and another image on the door with PAH major septal. Diagnosis of endocarditis holding position right up right under cefotaxim NFS showed a pancytopenia WC 2800 HB6. 9 plt140000. Despite the transfusion of packed red blood cells

treatment and evolution:14 days after treatment cefotaxim fever perciste and the vegetations has at the cardiac ultrasoubd in septal heart valve with prolapseat the pancytopenia Archangel treatment cefotaxime was substituted by amoxicillin

during 6 weeks per week amoxi 05 apyrexia good condition we note the persistence of hisbreath but significant decrease in intensity and changed stamp

Discussion: Our patient presented a complication endocarditis of the right hearth its large VSD with PAH impact hemodynamique proves by echocoeurwith pancytopenia of the persistence of fever despite C3G persistence of clinical signs and breath febrile alteration of the general state biological pancytopenia sd inflammatory and ultrasound of endocarditis is thought to be a naturally resistant enterococcus C 3 G or other germs requiring middle eCulture specific problem ordissemination of antibiotic-level vegetation and this latter grouphacek after eliminating other causes of endocarditis brucellosis Kg since admissionIntensity but the very breath he change stamp it becomes serious dismonth.

**Conclusion :** Although leukocytosis and anemia is common in endocarditis. The finding of febrile pancytopenia should not dismiss this diagnosis especially in the presence of heart murmur and a history of heart valvulopathy before predisposed

**P 85 Invasive pneumococcal infection in adults in Central Tunisia**

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**Objective:** to describe epidemiological and clinical aspects of invasive pneumococcal infection in adults in Central Tunisia.

**Methods:** We conducted a retrospective, descriptive study of the cases of pneumococcal infections confirmed bacteriologically (by culture), in patients hospitalized in the Department of Infectious Diseases, Sousse-Tunisia, between January 2000 and December 2010. Streptococcus (S) pneumoniae sensitivity criteria to penicillin G, ampicillin and cefotaxime are those of the Antibiogram Committee of the French Society of Microbiology.

**Results:** Twenty eight episodes of pneumococcal infection were observed in 27 patients, 19 men and 8 women (sex-ratio, 2.3), mean age 45 years (16-75). Eleven patients (40%) had one or more comorbidities. The most common infections were meningitis (16 patients/17 episodes) bacteriemic acute lobar pneumonia, and infection of ascitic fluid (3 cases each). Four strains (14%) of S. pneumoniae had decreased susceptibility to penicillin (PDSP), and one strain (3%) was resistant to penicillin, ampicillin, and cefotaxime. No strain was resistant to vancomycin, pristinamycin, and rifampicin. In all patients infected by PDSP, at least one risk factor (age > 75 years, immunosuppression, and antibiotic therapy in the last 6 months) was found. Initial antibiotics were mainly cefotaxime in 20 cases (71%), ampicillin and amoxicillin-clavulanic acid in 3 cases (11%) each. Mean duration of antibiotic therapy was 14 days. The evolution was favourable without sequelae in 19 cases (67%). Five patients (18%) died, 3 of whom with meningitis. The main cause of death was septic shock (3 cases). Four patients (14%) had sensorial sequelae (of meningitis).

**Conclusion:** In our study, the most common invasive pneumococcal infection was meningitis. The rate of PDSP was 18%. Mortality and neurosensory sequelae remain dreadful complications especially in meningitis.

**P 86 Severe community acquired pneumonia in a regional hospital**

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**Introduction:** Despite advances in the treatment of severe infections, severe Community acquired pneumonia in adults (CAP) remains a public health issue by their frequency, morbidity and mortality.

**Patients and Methods:** retrospective cohort 2 years study (2009-2010) including CAP defined by the presence of radiographic pulmonary infiltrates with at least one major sign (cough, sputum, fever > 37, 8C) or two minor signs (dyspnea, chest pain, impaired consciousness, condensation syndrome) associated with at least one sign of severity according to the ATS. Are excluded patients whose presentation is compatible with the diagnosis of acute pulmonary edema.

**Results:** 76 patients were included from a total of 640 (11.8%). 47 men and 29 women age = 62 ± 17 years. 56.6% patients older than 65 years. SAPS II = 39.9 ± 15. APACHE II = 13 ± 7. Main presentations are: respiratory distress in 81.5%, consciousness disorder in 14.4% in which coma (Glasgow coma scale <8) was 7.8% and shock in 23.6%. Respiratory acidosis was noted in 42 patients (55.2%), metabolic acidosis in 14 patients (18.4%). 40 patients (52.6%) required mechanical ventilation. Identification of the germ is carried in 23.6% of cases. The assessment severity score shows that 76.4% of patients had a Fine score stage IV - V and 43.5% had a CURB 65 score ≥ 3. The treatment is based on a combination therapy with a beta-lactam and a quinolone or macrolide in 93.5% of cases. The mortality rate is 36.8%.

**Summary:** In our series, CAP represents 11.8% of admissions. Patients are often older (> 65 years), needs in more than a half mechanical ventilation and have high mortality, low identification of germs causes and severity scores have low discriminative.

**P 87 Prevalence of Mycoplasma pneumoniae-associated low respiratory tract infections in little infants : a 5-year prospective study**

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**Aims:** to determine the incidence of Mycoplasma pneumoniae (MP) infection in infants aged less than 6 months admitted to pediatric intensive care (PICU) with low tract respiratory infection (LTRI) and to investigate the epidemiologic characteristics of these infections.

**Design:** interrogation of a computerized clinical database of a 4 years prospective etiologic study among



hospitalized children with LRTI in our PICU to determine the prevalence of MP infection. All patients less than 6 months, admitted with LTRI were included. Diagnosis of MP infection was made according to PCR, culture and/or serology.

**Results:** among the patients included and investigated (512), 17 had a MP infection with an incidence of 3, 3%. The mean of age was  $2, 5 \pm 2$  months and sex ratio M/F was 1, 6. Cause of PICU transfer was a respiratory failure in 88% and mechanical ventilation was necessary in 94% of them. Extra-respiratory manifestations were noted in only few cases (3). Twelve (70, 5%) patients were detected MP positive by PCR and/or culture, whereas 2 (11, 7%) were serologically positive only and 3 (17, 6%) were positive by PCR and serology. Bacterial co infection was noted in 6 cases and viral infection was associated in 8 cases. Median length of stay was 7 days and over all surviving rate was 88, 2%. Two patients died from a severe Pertussis associated infection.

**Conclusion:** In our prospective single centre experience, incidence of LTRI caused by MP is low but seems misdiagnosed. PICU admissions are not rare and can be lifethreatening. A better understanding of the features of MP infections in Tunisia will require continuous nationwide epidemiologic studies.

**P 88 Pertussis requiring intensive care.**

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**Objectives:** To describe **children** with **pertussis** who require **intensive care**.

**Design, setting and patients:** Analyse of all cases of severe pertussis admissions to paediatric intensive care unit (PICU) of the children's hospital of tunis, Tunisia from 2007 to 2011. Diagnosis was made according to PCR assay.

**Results:** 78 **infants**, 93% of whom were <3 months old. The annual number of cases increased with time. Seventy patients (90%) were coughing for less than 8 days before admission. Apnoea or paroxysmal **cough** was present in 58 (74%) of these **children**. Fifty six (72%) received assisted ventilation. Bacterial co-infection was present in 37, 2% of cases. Ten patients died (12, 8%). Malignant pertussis was noted in 12 patients. Mean length of stay was  $5, 3 \pm 3, 5$  days and the median duration of mechanical ventilation was 7 days. There was an increased risk (Odds ratio, 95% CI) of death associated with having shock at admission (OR = 5, 2, 2 to 12), an elevated lymphocyte count (OR = 12, 3 to 11) or presenting with seizures/encephalopathy (2, 3, 1. 18 to 8. 34). Treatment with intravenous macrolides seems to be not related to prognosis..

**Conclusions:** Severe pertussis infection is a common and serious disease in non vaccinated infants and seems to be misdiagnosed. Apnoea and paroxysmal **cough** are

key symptoms of **pertussis** in those with shorter **cough** duration. Death or disability are frequent. Clinical factors define **children** at increased risk of these poor outcomes.

**P 89 Pulmonary abscess: a review of 11 pediatric cases**

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**Introduction:** Pulmonary abscess is an uncommon complication of pneumonia in children. Pyogens, in particular Staphylococcus aureus or Streptococcus pneumoniae are the principal responsible bacteria. Several studies have reported an increasing incidence of children lung empyemas in various countries

The aim of the study is to describe the epidemiological, clinical and therapeutic characteristics of these complications.

**Population and Methods:** We have listed the children from 28 days to 15 years old, hospitalized in Paediatrics, Emergency and intensive care department of Hedi Chaker Hospital, for a pulmonary abscess from 2005 to 2011.

**Results:** During the study period, 11 children were hospitalized for a lung abscess, 6 of them were boys. The mean age was 6 years. A history of asthma was noted in 2 cases, of congenital heart disease in 3 cases and of immune deficiencies in 2 cases. Fever was the most common symptom present in all cases. The lesion was unilateral in 10 cases; the right lung was affected in 4 cases. The superior lobe was affected in 5 cases. Pleural empyema was associated in 4 cases. The bacteria were isolated only in 2 cases. Antibiotics were based on Cefotaxime, Vancomycin and Metronidazole. The mean duration of treatment was 2 months. Surgery was indicated in 4 cases. The outcome was favorable in 10 cases.

**Conclusion:** Lung abscess can be primary or secondary. CT scan helps to the diagnosis but the bacteriological diagnosis remains difficult to obtain. The treatment is mainly medical. The indication of the surgical alternative becomes limited.

**P 90 Thoracic empyema in children: clinical course, therapeutic options and long-term follow-up about 28 cases**

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**Introduction:** Thoracic empyema continues to be a common disease entity in our institution. The management of this pathology in children continues to be a source of debate.

**Patients and Methods:** A retrospective study was carried out from 2005 to 2011 including all cases of thoracic empyema in children.

**Résultats:** During this period, 28 cases of thoracic empyema were recorded. The mean age was 5 years old. They are 17 boys and 11 girls.

The clinical manifestations are fever and dyspnea in all children. Imaging techniques showed unilateral thoracic empyema in all cases. Eight children have loculated empyema. Intravenous antibiotic were needed for 21 days in mean. Chest tube drainage performed in 11 cases. The evolution was favorable in all cases. The long-term outcome showed slight pleural thickening in tow patients.

**Conclusion:** The choice of treatment of empyema has important implications for patient outcomes. Further pediatric studies are required to determine a therapeutic strategy for thoracic empyema in children.

**P 91 Mediastinitis from odontogenic infection**

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**Introduction:** Acute purulent mediastinitis is a rare complication of odontogenic infection in which case it is termed descending necrotizing mediastinitis. Early diagnosis and optimal therapeutic approach are crucial for patient survival. CT scanning of the cervical and thoracic area is a useful tool for diagnosis and follow-up.

**Materials and Methods:** A 40-year-old man was admitted with a diagnosis of submandibular abscess, as a complication of dental treatment of the mandibular molars. Despite the drainage of the submandibular abscess, the extractions of first and second mandibular molars and the intravenous administration of antibiotics, the patient remained systemically unwell and developed respiratory distress. A chest radiograph and computerized tomography (CT) were performed.

**Results:** The chest radiograph showed widening of the mediastinum and the CT demonstrated large anterior

mediastinal collections. Thoracotomy was performed and the collections were drained. The subsequent recovery of the patient was slow. He was discharged 2 months after initial admission.

**Conclusion:** Odontogenic mediastinitis is a rare disease with rapid course. Clinical diagnosis is difficult and early recognition with a low threshold for CT scanning is essential. CT is also useful for the treatment and in the post operative assessment. The programs of intensive therapy adjusted for the disease phase and surgical treatment contributed to lowering of lethality.

**P 92 Etiological features of prolonged fever – About 40 cases**

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**Introduction:** prolonged fever is a frequent case of infectious hospital-stay. The first problem to face is its etiologic diagnosis. The goal of this study is to describe the etiologies, diagnostic strategies and evolution of prolonged fever in an infectious diseases department.

**Patients and Methods:** it is a retrospective study established in the department of infectious diseases of Fattouma Bourguiba Hospital in Monastir including 40 patients hospitalized for prolonged fever from 1998 to 2012, excluding patients with tuberculosis.

**Results:** Twenty-one (52. 5%) patients were male. The average age was 42. 5 years (14 – 81). Throw out fever; the main symptoms were muscular and articular pains in 24 cases (60%), cough in 17 cases (42%), headache and weight loss in 11 cases (27%), and skin rash in 10 cases (25%). At clinical examination, fever was noted in all patients, hepatosplenomegaly in 10 patients (25%), peripheral enlarged nodes in 6 cases (15%), and skin rash in 7 cases (17. 5%). Biological inflammatory syndrome was noted in 39 cases (97. 5%), hematologic disorders were found in 35 cases (87. 5%), anemia in 31 (88. 5%), leukocytosis in 23 (65. 7%), leucopenia in 6 (17%), thrombocytosis in 4 (11. 4%) and thrombopenia in 7 (20%). High liver enzymes was noted in 13 (32. 5%) and cholestasis in 6 (15%). Final diagnosis was established in 35 cases (87. 5%). Fever remains unexplained in 5 patients (12. 5%). Etiologies were distributed between: Hematologic malignancies (7 cases), solid cancers (3 cases), Systemic inflammatory diseases (10 cases), infections (11 cases), familial mediterranean fever (2 cases), hyperthyroidism (1 case) and false fever (1 case). Evolution was favorable in 28 cases through a median follow-up of 4 months.

**Conclusion:** prolonged fever remains a diagnostic challenge for clinicians as demonstrated by the high rate of diagnostic failure (30 %). We may note the high prevalence of non infectious causes in our study (60%).

**P 93 Erysipelas of the upper limbs: a case-control study**

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**Introduction:** Erysipelas of the upper limbs is uncommon but may have a large spectrum of severity. The purpose of this study was to describe and precise the epidemiological, clinical profile and therapeutic of this disease compared to its localization of the leg.

**Patients and Methods:** We retrospectively reviewed the medical charts of patients admitted for erysipelas of upper limbs to the infectious diseases department of Fattouma Bourguiba Teaching Hospital between July 1987 and December 2009. The diagnosis of erysipelas was based on a sudden onset of cutaneous inflammatory plaque, with or without fever. Eighty five cases of erysipelas of the upper member were hospitalized during the study period. For control, there were 250 patients with erysipelas of the leg drawn randomly by referring to a frame of 1000 patients.

**Results:** Erysipelas of the upper limbs was more frequent in female (77. 6% vs 38. 4% , p<0. 0001). The mean age of the patients was 54±18 years.

The mastectomy with lymph node dissection and radiotherapy for breast cancer was detected in 36. 3%. Fever was present in 67. 1% of cases, with a mean duration of 2. 8±1. 7 days. The mean length of admission was 15±7 days.

Blood cultures were statistically more positive (13. 3% vs 3. 8%, p <0. 0001). The most commonly used antibiotics were penicillin G (55. 2%) followed by cephapirin (35. 2%). Ten failures were noted with penicillin G and no failures have been reported with cephapirin (p = 0. 005).

The recurrence of erysipelas was statistically more frequent during erysipelas of the lower limbs (8% vs 37. 6%, p <0. 0001).

**Conclusion:** Erysipelas of upper extremities may appear as a complication following mastectomy and radiotherapy for breast cancer. The practice of blood cultures should be systematic and first generation cephalosporins appear more effective than penicillin G. The recurrences are less frequent.

**P 94 Procalcitonin level in sepsis correlation with etiology**

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**Introduction:** Procalcitonin (PCT) is a novel peptide that consists of 116 amino acids with the same sequence of the prohormone of calcitonin synthesized in the C

cells of the thyroid gland. It is significantly elevated in the serum of patients with sepsis. The present work was undertaken to determine whether PCT concentrations in adults with nosocomial infections vary with pathogen type (Gram-negative bacilli vs Gram-positive cocci).

**Methods:** 1 From January 2011 through December 2011, we enrolled a total of 87 positive blood culture in a retrospective study. Only monomicrobial hemoculture are taken. 2 Procalcitonin was determined by a commercially available immunoluminetric assay LUMI Test PCT kit (B. R. A. H. M. S. Diagnostica, Berlin Germany). Values > 0, 5 ng/ml were considered to be pathological. 3 Data analysis: The data were analyzed using SPSS 17. 0 software. A p value <0. 05 was considered statistically significant.

**Results:** Positive blood cultures were obtained in 87 hemoculture. Gram-negative bacteria were cultured in 57. Gram-positive bacteria were revealed in 30 hemocultures.

The increase in PCT levels was significantly higher in bacteraemia caused by Gram-negative bacteria than in that caused by Gram-positive bacteria. The median PCT level in the presence of gram-negative bacteria was 22. 62 ng/ml (±39. 73 ng/ml) versus 10. 76 ng/ml (±18. 24 ng/ml) if gram-positive bacteria were identified in the hemoculture (P = 0. 04).

**Conclusion:** serum PCT levels may help the physician to decide on the antimicrobial therapy combination before obtaining the culture results, or in situations in which the agent could not be isolated yet.

**P 95 Eosinophilic cystitis: a case report**

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**Introduction:** Eosinophilic cystitis is a rare inflammatory pathology. It remains a poorly understood entity. The etiology is unclear despite the past identification of many factors contributing to this disease. It's characterized by transmural inflammation of the bladder predominantly with eosinophils, associated with fibrosis with or without muscle necrosis. Cystoscopy and biopsy are the gold standard for diagnosis.

**Case report:** We report the case of a 70 years old man who had a history of pyelonephritis with followed by frequent and invalidate cystitis treated initially by antibiotics, antihistaminics and anticholinergics. A cystoscopy with biopsy brought the diagnosis of eosinophilic cystitis by the presence of transmural inflammation with mainly eosinophils. The Aetiological research of this cystitis was negative. The treatment was based on high dose of corticotherapy with favorable evolution.

**Discussion and Conclusion:** The cause of eosinophilic



cystitis remains unclear, although it has been associated with various aetiological factors, such as allergy, bladder tumour, bladder trauma, parasitic infections and chemotherapeutic agents. Its treatment is based on anti-inflammatory, antihistaminic and eventually corticotherapy and immunosuppressor. Because the lesion tends to recur and to evaluate to fibrosis in spite of the above therapy, long-term follow-up is mandatory.

**P 96 Assessment of modalities of administration and plasma levels of Vancomycin in 28 patients.**

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**Introduction:** Currently, vancomycin represents the treatment of choice for severe infections with staphylococci, streptococci and enterococci, for children and adults. So far the good use of vancomycin limits the emergence of resistant strains, it is important to determine its plasma levels in order to adjust the initial dosage if necessary.

**Patients and methods :** The study included twenty-eight (28) hospitalized patients receiving vancomycin infusions, for whom the determination of plasma levels of vancomycin was performed by immunoturbidimetry (PETINIA®). We have evaluated (1) the modalities of administration, (2) the plasma levels of vancomycin, and (3) the clinical outcome of patients.

**Results:** Vancomycin was administered continuously in 18% of cases (5/28) and intermittently for the rest (82%: 23/28), with at least two infusions per day (2 to 6). The mean dose was 36 mg/kg/24 hours.

Despite respecting the modalities of administration (doses greater than or equal to 30 mg/kg/24 hours in two or more injections), 70% (20/28) of plasma levels of vancomycin were below 10 mg/L (which could be inefficient) and 22% (6/28) were between 10 and 20 mg/L, while 7% (2/28) were greater than 20 mg/L. In spite of that, the clinical outcome was favorable in two thirds of cases (65%); this could be explained by the absence of infection, an infection with vancomycin-insensitive germs or to the polychemotherapy.

**Conclusion:** This study show that the majority of plasma levels of vancomycin were not within the therapeutic range (10 à 20 mg/L); therefore, further investigations would be needed (dosage, pharmacokinetic interactions... ) in order to clarify the reasons of these trends. Collaboration between clinicians, microbiologists and analysts appears as an indispensable prospective to

standardize the therapeutic monitoring and secure the use of vancomycin, especially, in the case of severe infections and for particular grounds.

**P 97 Therapeutic drug monitoring (TDM) of aminoglycosides in patients with renal dysfunction**

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**Introduction:** Aminoglycosides, antibacterial agents, are usually indicated in the treatment of serious gram-negative infections. The pharmacokinetic of these antibacterials is altered in case of renal dysfunction since the elimination is closely correlated with creatinine clearance.

The aim of this study is to evaluate retrospectively the experience of our laboratory in therapeutic drug monitoring of aminosides (amikacin and gentamycin) in patients with renal dysfunction.

**Patients and Methods:** All patients received aminoglycosides for bacterial infections and presented a concomitant renal failure were included in this study (March 2008-February 2012). Aminoglycosides were administered once daily, over 1 hour infusion. Blood samples for drug assays were drawn immediately before drug administration (C<sub>0</sub>). Serum concentration was considered as non toxic if the trough level (C<sub>0</sub>) is <4 µg/ml and <1 µg/ml for amikacin and gentamycin, respectively. Serum concentrations were determined using an Enzyme multiplied immunoassay technique (V-Twin, Siemens).

**Results :** A total of 67 patients (33 males and 34 females) receiving aminoglycosides (amikacin=30, gentamycin=37) were included in this study. Eight patients (11 %) received intermittent hemodialysis. One aminoglycoside trough concentration was measured in most patients (52). In the initial dosing, serum concentrations were supratherapeutic in 70 % and 81 % for amikacin and gentamycin, respectively. A decrease of the dose and/or an increase of the dosing interval was recommended in 20 and 24 patients receiving gentamycin and amikacin, respectively. A second serum sample was taken in 15 patients after dose adjustment. The serum aminoside concentration decreased significantly (p= 0. 04 and 0. 02 for gentamycin and amikacin, respectively).

**Conclusion:** Based on our experience, the currently recommended aminoside dosage may be inadequate and the therapeutic monitoring of these drugs is essential to individualize the dosing regimen in patients with renal dysfunction.

**P 98 Adverse drug reaction associated with antibacterial agents: A case/non-case study from a Tunisian Pharmacovigilance database**

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**Introduction:** Beside the pharmacovigilance algorithms, the case/ non-case is a recent approach based on the measurement of the association between a drug intake and the occurrence of ADRs in a pharmacovigilance database. We aimed through this study to identify ADRs reported in association with antibacterial agents.

**Methods:** The data were obtained from a Tunisian pharmacovigilance database. The ADRs reported with a causality assessment of certainly, probably or possibly drug related (according to the Begaud *et al.* method) were analyzed. The association between drugs and ADRs was assessed using the case/non-case method. The "cases" were defined as reports of ADRs implicating antibacterial agents and "non-cases" were all the other ADRs reports. The frequency of the association between ADRs and the suspected drug in comparison with the frequency of ADRs associated to all the other drugs was calculated using the ADR reporting odds ratio (ROR) and their 95% confidence intervals.

**Results:** Overall 992 reports of ADRs were analyzed; of which 532 were excluded because they were unclassifiable or unlikely in terms of causality assessment. Therefore, the analysis was carried out on 460 reports. ADRs were mainly skin eruption (67. 8%), liver injury (10. 2%), anaphylactic reactions (8. 2%) and hematologic reactions (5%). Antibacterial agents were most frequently associated to skin eruption (OR=2. 26; 95% CI [1. 51-3. 38],  $p < 10^{-3}$ ). Among antibacterial agents, the betalactams and the macrolides were associated to skin eruption (OR=2. 20; 95% CI [1. 38-3. 49],  $p = 0. 001$ ) and (OR=4. 02; 95% CI [1. 19-13. 59],  $p = 0. 025$ ), respectively. Regarding betalactams, both penicillins and cephalosporins were associated to skin eruption (OR=1. 92; 95% CI [1. 11-3. 34],  $p = 0. 02$ ) and (OR=2. 14; 95% CI [1. 04-4. 40],  $p = 0. 03$ ), respectively.

**Conclusion:** Results on antibacterial agents' classes are in accordance with previous findings, indicating that betalactams are the most frequently associated with skin eruptions. However, given the widespread use of these drugs, awareness should be raised among patients and prescribers about these risks.

**P 99 Characteristics Of HIV Infected Patients Attending HIV Clinic At Aljomhoria Hospital.**

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**Background:** HIV infection is a global health problem, patients characteristics differ according to geographical area in term of demographic data and clinical presentation. The aim of this study was to define our patients demographic, clinical and laboratory profile.

**Methods:** The cohort of this study were HIV-infected adults who had been referred to HIV clinic between 2007 till 2011. Medical records of the patients used including review of demographic data, physical examination, psychosocial interview and base line CD4 count and HIV viral load to determine the degree of immunodeficiency at the time of presentation according to our national HIV/AIDS guidelines.

**Result:** Out of 175 newly diagnosed HIV adults, 122 (69. 7%) were males and 54 (30. 8) were females. The mean age at presentation for both sexes 37. 7 years. Libyan nationality account for 88. 5% and 48% were single. The major risk factors were heterosexuality (44%) followed by IVDU (27%). The most clinical presentation were weight loss, wasting disease, chronic diarrhea, oropharyngeal candidiasis and anemia. Coinfection with HCV and HBV were 25 patient (12. 6%). HIV viral load at presentation was log 5. 6 for males and log 5. 3 for females. Patients who have CD4 counts less than 200/ul at presentation were 58 patient (33%). The most reported reason for delaying testing was HIV stigma.

**Conclusion:** The result of this study clearly shows that majority of the patients were of productive age group, still the major risk factors were heterosexuality and drug abusers. Clinical and laboratory findings suggest that our patients present late. The most important factor leading to this delay was HIV stigma. Media campaigns targeting testing high risk groups, reduction of HIV stigma, Strategies to improve identification of cases of AIDS are necessary to reduce HIV transmission and improve prognosis for patients who receive early antiretroviral therapy.

**P 100 Profile of attendee for HIV voluntary counseling and testing in Monastir (Tunisia)**

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**Introduction:** The frequency of HIV infection is still low in Tunisia. However, risk factors are growing constantly. The implementation of voluntary counseling

and testing centers is an essential service to enhance prevention strategies.

The objective of this study was to describe the profile of the attendees at the Center for Voluntary Anonymous Counseling and Testing in Monastir (Tunisia).

**Methods:** A cross-sectional study was conducted between 01/01/2008 and 31/12/2011 and including all attendees at the Center for Voluntary Anonymous Counseling and Testing in Monastir. Sociodemographic characteristics, knowledge and sexual behavior data were collected using a structured questionnaire.

**Results:** We included 256 participants. Means age was  $28.2 \pm 6.3$  with a female predominance (sex ratio=0.86). Among the attendees, 75% were literate but 60% among do not exceed the secondary level of education and 35% were currently married. Also, 66% clients were gainfully employed. Results showed that 65% knew unprotected sex as the main risk factor and 89% reported having had sexual intercourse during their lifetime among them only 31% always used condoms and 8% have homosexual behavior.

**Conclusion:** The results of this study indicated that much greater efforts are needed to improve HIV/AIDS knowledge, to promote safer sex particularly among those engaging in risky behaviors.

#### P 101 CD4 cell Counts Of Newly Diagnosed HIV Infection In Eastern Part Of Libya.

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**Background:** The CD4 counts serves as major indicator of immune function and prophylaxis of opportunistic infections in patients who have HIV infection. The aim of this study was to evaluate the absolute CD4 cell counts of the newly diagnosed HIV infected persons who presented to infectious diseases department at Benghazi city which included in the national program of HIV/AIDS management.

**Method:** The cohort of this study were HIV-infected adults who had been newly diagnosed and referred to HIV clinic between 2006 till 2010. The CD4 cell counts absolute and percentage done at their first visit to the center as part of the initial workup to assess their disease status and to initiate combined antiretroviral therapy based on our national guidelines.

**Results:** Of the 175 newly diagnosed adults, 122 (69.7%) were males, who had a median age at presentation of 37 years. The median CD4 cell count at the time of diagnosis was 260 /ul (54.3%), among males the median CD4 cell count was 252/ul and 262 among females. Ninety five patient (54.3%) had CD4 cell count of < 350/ul at presentation (P = 0.81). fifty six patient (32%) have their CD4 was < 200. There was clinical significant among males and females regarding absolute CD4 of < 200 /ul at presentation (P = 0.38).

**Conclusions:** Late presenter of HIV infection often ill,

have a high mortality risk, and are less likely to respond to treatment. More than half of the patients (54.3) had an initial CD4 cell counts that was consistent with relative advanced disease. These findings indicate a need for great effort regarding early detection of HIV positive adults and the importance of HIV testing for high risk groups to reduce transmission, reduce health cost and improve the prognosis of patients who receive early antiretroviral therapy.

#### P 102 Measurement of plasma viral load: Criteria for evaluation of antiretroviral therapy

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Support antiretroviral therapy and prognosis of HIV infection / AIDS have been disrupted by: the provision of HART and their universal and free access since 1998 in the CDR in Algeria, the development of consensus treatment guidelines periodically updated and gradual establishment of a viro-immune biological monitoring.

Plasma viral load was measured by RT-PCR (Polymerase Chain Reaction). 625 new cases patients (naive) supported were treated as first-line combination of two types namely: 02 IN + 01 INN or 02 IN + 01 IP.

At one month of treatment, 595 patients or 91.2% respond favorably and the viral load became undetectable in 48.32% of cases, or reduced by more than half a log in 46.88% cases. An unfavorable change was observed in 4.8% of cases manifest by a stable viral load or increased. The statistical data show that the efficacy of two antiretroviral combinations is similar after one month of administration. Antiretroviral treatment has reduced morbidity and mortality of HIV infection, transforming the disease into a chronic infection. Our results confirm the importance of screening and early start of treatment, and the need to detect resistance as etiology of viral failure.

#### P 103 Phylogenetic diversity and drug resistance of human immunodeficiency virus type1 (vih-1) strains in tunisian patients

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**Background:** The HIV-1 genetic diversity and the growing occurrence of HIV-1 strains resistant to antiretroviral (ARV) agents have given rise to serious concerns regarding HIV-1 monitoring in Resource-limited Settings. The aim of this study was to assess the



prevalence of HIV-1 subtypes and their relation with class-drug resistance profiles in Tunisian patients.

**Methodology:** All HIV-positive patients who underwent genotypic resistance testing in the period 2009-2010 were selected. The HIV-1 genotyping was performed from plasma samples of 78 infected patients (40% female and 60% male) using the ViroSeq HIV-1 Genotyping System. The Stanford University HIV Drug Resistance database algorithm was used for interpretation of resistance data. Sequences of non-subtype B those provided as unassigned were analysed with Simplot v3. 2.

**Results:** Distribution of HIV-1 subtypes revealed that 64 patients (82%) were infected with subtype B, 11 (15%) with circulating recombinant form CRF02\_AG and 1 (1%) with subtype C. Simplot analyses for 2 (3%) unassigned strains showed two B/F1 recombinant forms with different recombination breakpoints.

Drug resistance-conferring genotypes were identified within patients infected with subtype B (63%) and CRF02\_AG (54%). Multi-drug resistance to 2 and 3 antiretroviral classes were present in 37% and 16% of subtype B viral strains and for 36% and 18% of CRF02\_AG strains respectively.

**Conclusions:** This study reveals the emergence of genetic diversity of HIV-1 currently circulating in Tunisia. The increase in non-B subtypes identified may be a result of migration and changes with regions where non-B clades and CRFs are prevalent as Libyan and or European countries. The high prevalence of resistance to antiretroviral drugs among CRF\_02AG as well as subtype B is the result of investigation of therapy-failing individuals and suggests that it is so urgent to dispose a large panel and new classes of ARV and continuous molecular investigations for the monitoring the HIV-1 epidemic.

**P 104 AIDS-associated Kaposi's sarcoma: a report of 30 cases**

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Kaposi's sarcoma is a multifocal vascular tumor involving skin and other organs. Kaposi's sarcoma is the most common acquired immune deficiency syndrome (AIDS)-associated malignancy. Our aim to analyse the epidemiological, clinical, therapeutic findings in AIDS patients with Kaposi's sarcoma.

**Methods:** this was a retrospective chart review of AIDS patients with Kaposi's sarcoma diagnosed between January 1985 and December 2010. Epidemiological data, the stage of human immunodeficiency virus's (HIV) infection, clinical characteristics of Kaposi's sarcoma, treatment and outcome were collected. The search of HHV-8 was not done.

**Results:** 30 patients were included. They were 24 men and 6 females (sex ratio: 4) with a mean age of 41, 8 years (24-70 ans). The mean interval between the diagnosis of HIV infection and Kaposi's sarcoma was 1, 2 years (0-10 years). The Kaposi's sarcoma was the first AIDS-defining illness in 12 cases. There were 7 homosexual men. CD4<sup>+</sup> lymphocyte mean count was 154  $\phi$ /ml. all patients had skin lesions. Mucocutaneous lesions were observed in 15 cases and associated with visceral involvement in 14 cases; lung (13 cases), gastrointestinal tract (6 cases), lymphadenopathy (8 cases), liver (5 cases), spleen (3 cases). Highly active antiretroviral therapy (HAART) was prescribed for 20 patients. Nine patients received chemotherapy and 5 others radiotherapy. Outcome was favourable in 10 cases with a partial improvement of the skin lesions in 6 cases and a complete regression in 3 cases. Fourteen patients died.

**Conclusion:** AIDS associated Kaposi's sarcoma is a severe condition because of visceral localisations and the field of immunodeficiency. It requires a precocious diagnosis and collaboration. The identification of HHV8 in the aetiopathogenic mechanism of Kaposi's sarcoma can lead to the development new therapeutic approaches.

**P 105 Human immunodeficiency virus type-1-associated lymphoma: a report of 16 cases**

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**Background:** Tunisia is one of African countries where seroprevalence of human immunodeficiency virus (HIV) infection is low. However, lymphoma is considered as the second AIDS-defining illness after Kaposi's sarcoma in our experience.

**Objectives:** we report clinical, epidemiological, and histopathological findings in patients with HIV-associated lymphoma.

**Methods:** we retrospectively reviewed all patients aged above 15 years and hospitalized for haematologic disorders from January 1985 and December 2010. Patients with a diagnosis of aggressive lymphoma were included. The stage of lymphoma was based Ann Arbor system.

**Results:** 16 patients were reported with HIV-associated lymphoma; 62% were heterosexual and 38 % intravenous drug users. The mean age was 38 years (21-53 years) and sex ratio was 4. The mean interval between the diagnosis of HIV infection and lymphoma was 2. 7 years. The lymphoma was the first AIDS-defining illness in 4 cases. CD4<sup>+</sup> lymphocyte count below from 200 cell /mm<sup>3</sup> in 5 cases (43. 7 %) and a mean plasma HIV viral load was 441800 copies /ml. Highly active antiretroviral therapy (HAART) was prescribed for 5 patients before

the diagnosis of lymphoma. All patients had B systemic symptoms (fever, night sweats, fatigue, or loss of body weight). 9 patients (56 %) had HIV-associated non hodgkin lymphoma (HIV-NHL). One patient had a probably primary cerebral lymphoma. 5 patients with HIV-HL were at stage III or IV; and patients with HIV-NHL had a diffuse large-cell lymphomas (6 cases) and Burkitt's lymphoma (1case). Extranodal involvement was observed in 9 cases. 10 patients were treated with chemotherapy and/or radiotherapy. From all patients, only two are still alive 19, 5 months after diagnosis.

**Conclusion:** in our experience, lymphoma remains the most lethal complication of AIDS, associated with a very poor prognosis. Survival may be improved by early diagnosis and restoring immune status with HAART.

**P 106 Risk factors of ocular involvement in patients with HIV disease**

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**Purpose:** to identify the ocular complications of HIV/AIDS and to determine if there is any correlation between their occurrence and the level of CD4 lymphocytes count.

**Material and Methods:** This retrospective study was carried out from January 2000 to December 2010. One hundred and fifty three HIV positive patients with known CD4 count were retained for the study. Each patient had a complete ophthalmological examination.

**Results:** A total of 153 patients including 112 males (66. 6%) and 41 females (26. 8%) were examined. The mean age was 33. 72 years  $\pm$ 8. 96. The ophthalmic examination was pathological in 114 patients (74, 5 %). An ocular complaint was the inaugural manifestation of the disease in 3. 26% of patients. The principal lesions of the anterior segment were keratitis sicca (44. 4%) and anterior uveitis (9. 15%). The most common posterior segment lesions were toxoplasmosis (9%) and uveitis (15. 8%). 65. 3% of patients with ocular complications have a CD4 count of less than 200/mm<sup>3</sup>.

**Conclusion:** With the improvement of access to antiretroviral treatment, the ocular complications of HIV/AIDS are more common. The role of the ophthalmologist is therefore essential in the diagnosis and management of these patients.

**P 107 Quantitative determination of hepatitis B surface antigen (HBsAg): correlation with viral load in chronic hepatitis B infection**

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**Background:** viral load has been used to diagnose and monitor patients who are being treated for chronic hepatitis B (CHB). Quantitation of hepatitis B surface antigen (HBsAg) by automated chemiluminescent micro-particle immunoassay has been proposed to be a surrogate marker. Quantitating HBV DNA levels molecularly is expensive, thus, a cheaper laboratory test as a surrogate diagnostic marker might simplify our management.

**Objectives:** we determined whether quantitative HBsAg levels correlates with hepatitis B virus (HBV) DNA levels in order to prospect the possible use of this marker in serological diagnosis and monitoring of chronic hepatitis B infection.

**Patients and Methods:** 158 sera were collected between 2002 and 2011 from 30 chronic HBsAg carriers known to be HBsAg positive for more than 6 months. They included a group of 21 patients treated with either pegylated-interferon  $\alpha$  or nucleos(t)ide analogues (11 patients were HBeAg positive and 10 patients were positive for anti-HBe) and another group of 9 treatment-naïve patients (one patient was HBe positive). Globally, 18 CHB patients were HBeAg-negative and 12 were HBeAg-positive. HBV DNA was measured by Cobas Amplicor until May 2010, then, a real-time PCR (Roche Cobas Taqman) was used. Serum HBsAg was quantified by electrochemiluminescence assay using the Cobas e411 (Elecsys HBsAg II, Roche Diagnostics), wherein HBsAg was expressed in IU/ml.

SPSS. 17 was used to analyze the data.

**Results:** 28 CHB patients were HBeAg negative (53%) and were HBeAg positive (47%). Median age was 32 years. Median HBsAg level was 13630 IU/ml and median HBV DNA level was  $7.75 \times 10^5$  copy/ml. Patients with HBeAg-positive CHB were younger ( $p=0.042$ ). The median HBsAg titer and HBV DNA level were significantly higher in patients with HBeAg-positive CHB compared to HBeAg-negative CHB (median 33250 versus 2204 IU/ml,  $p<0.001$  and median  $10^8$  versus  $2.42 \times 10^4$  copy/ml,  $p<0.001$ , respectively). Serum HBsAg was correlated with HBV DNA levels ( $r=0.75$ ,  $p<0.001$ ). This Strong association was not longer observed when analyzing subgroups of patients. In fact, there was no significant correlation between HBsAg and HBV DNA in HBeAg-positive ( $r=0.26$ ,  $p=0.202$ ) and negative patients ( $r=0.36$ ,  $P=0.061$ ). However, among HBeAg-negative patients in the low-replicative phase ( $<10^4$  copy/ml), HBsAg titer was negatively correlated with serum HBV DNA ( $r=-0.66$  and  $P=0.02$ )

**Conclusion:** HBsAg does not correlate significantly with HBV DNA level in HBeAg-positive or negative patients, necessitating additional studies to standardize quantification assays and define thresholds of HBsAg that have clinical predictive value.

**P 108 Comparative study between two methods used for HBV genotyping: analysis of PCR-RFLP and partial sequencing in the Pre-S region**

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**Introduction:** Hepatitis B virus (HBV) is characterized by a high genetic variability than other conventional DNA viruses. This variability promotes the identification of eight genotypes (A to H) which are implicated in evolution of chronic infection and response for anti-viral therapy. Different methods were used for HBV genotyping, such as PCR with specific primers for different genotypes, PCR-RFLP and partial sequencing. PCR-RFLP has the advantage to its rapidity and is less expensive of other methods; however, its efficiency is not well known. The purpose of this study was to evaluate a performance of this method, for HBV genotyping, in comparison to partial sequencing known as a reference method.

**Material and Methods:** Ninety-eight patients infected chronically by HBV (65 males, 33 females) were studied retrospectively from January 2004 to December 2009. They were 14 inactive carriers, 52 patients with chronic active hepatitis and 32 patients with progressive liver disease (PLD). For all patients, HBV DNA levels were quantified by commercial real-time PCR (Roche) and HBV genotypes were determined simultaneously by RFLP-analysis and partial sequencing in pre-S region.

**Results:** The mean age of patients was 40. 12 years-old (from 16 to 71 years) and the mean HBV DNA levels was  $1.39 \times 10^9$  copies/ml (ranged from  $1.63 \times 10^2$  to  $5.71 \times 10^{10}$  copies/ml). On the whole, two genotypes were identified, a genotype D in 96% of cases (n=94) and A in 4% (n=4) of cases. PCR-RFLP was successfully used for 74 samples (75. 5%); for the remaining 24 samples (24. 5%), an atypical pattern was obtained. For these cases, partial sequencing identified genotype D for 20 samples and genotype A in 4 cases. Untypeable profiles were significantly associated to PLD than CAH and IC; 66. 7% vs 25% vs 8. 3%, respectively (p=0. 001) and were more prevalent in older patients (p<0. 05). They can be explained by an accumulation of mutations during a disease progression with emergence of new restriction sites.

**Conclusion:** PCR-RFLP is an easy-to-use method; however, attention should be paid especially in ultimate stages of the disease and for old patients.

**P 109 Identification of novel upstream regulatory sequences mutations in chronic infected patients with HBV in Tunisia**

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**Introduction:** The core promoter (CP) region of the genome of hepatitis B virus (HBV) plays an important role in viral replication and morphogenesis; the upstream regulatory Sequences (URS) and the basic core promoter (BCP) are its major functional parts. Mutations especially in URS play an important role in evolution of the infection. Up to now, no data are available about the prevalence of mutations in URS region. The aim of this study is to evaluate the frequency of these mutations and their impact on viral replication and disease progression.

**Material and Methods:** We conducted a retrospective study including 123 chronic infected patients by HBV genotype D: 20 inactive carriers, 58 patients with chronic active hepatitis and 45 patients with advanced liver disease (41 cirrhotic and 4 HCC). For all patients, CP region was amplified, sequenced and aligned by Bioedit software with determination visually of mutations. HBV DNA levels were quantified by real-time PCR.

**Results:** The mean age of patients was 41. 01 years-old (from 16 to 80 years). One hundred seventeen (95. 1%) patients displayed mutations in URS. Comparison, with non-Tunisian's sequences, revealed the presence at high frequency of A1652G, A1679G, A1703T, T1678C/G-A1703T, and A1652G-A1679G in our sequences. They were detected in (30. 9% vs 4. 2%), (38. 2% vs 2. 1%), (40. 6% vs 0%), (41. 5% vs 0%), and (30. 1% vs 0%), respectively (p<0. 05). Special attention should be paid to A1703T (40. 6%), T1678C/G-A1703T (41. 5%), and A1652G-A1679G (30. 1%) mutations which seem to be specific of Tunisians sequences. C1653T mutation was detected with low frequency (11. 4%) in our sequences. No significant association was observed for URS mutations with clinical status and virological parameters.

**Conclusion:** It is the first report of specific mutations for Tunisian's strains. Further studies are necessary to confirm their specificity and their impact in progression of chronic HBV infection.



**P 110 Clinical, Virologic and Phylogenetic Features of Hepatitis B infection in Morocco**

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**Introduction:** Morocco is a low-endemic country for chronic Hepatitis B virus (HBV) infection. However, studies of the molecular aspects of HBV infection are limited and sequence analysis in relation to the clinical phenotype has not been examined. In the present study, HBV genotypes/subgenotypes and mutations in the Major Hydrophilic region (MHR), precore (PC) and basal core promoter (BCP) regions were determined. The relationship between the virological characteristics and progression of liver disease was also assessed.

**Methods:** A cohort of 200 patients at different stages of chronic HBV infection was included. Serum samples were tested for serological HBV-markers and HBV-DNA levels. HBV genotypes/subgenotypes, MHR, PC and BCP mutations were determined by direct sequencing and phylogenetic analysis.

**Results:** The mean age of patients was 40. 6 ± 12. 2 years. Genotype D was the most prevalent (90%) followed by genotype A (10%). Genotype D strains belonged to subgenotypes D7 (70. 8%), D1 (25. 8%) and D2 (0. 9%). All genotype A strains belonged to subgenotype A2. The global prevalence of MHR variants was 15% with substitution P120T/S the most frequent. The most frequent BCP mutations were A1762T/G1764A (29. 5%), T1753V (28. 5%), G1764T/C1766G (17. 7%), and C1766T/T1768A (12. 4%). The most frequent PC mutations were G1896A (83. 4%) and G1899A (52. 7%). The mutations T1753V, A1762T/G1764A, C1766T/T1768A and G1899A were significantly associated with advancing liver disease (AdLD) whereas, no association was found between G1896A and G1764T/C1766G mutations and AdLD.

**Conclusion:** This study provides the first description of predominance of HBV subgenotype D7 among Moroccan HBV chronic carriers. It also showed the clinical and virological importance of information on MHR mutations for immunotherapy and vaccination efficacy and also BCP and PC mutations for prognostic and guiding treatment decisions.

**P 111 Detection of hepatitis B virus variants in Tunisian patients**

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The Hepatitis B virus (HBV) is the leading cause of chronic hepatitis, cirrhosis, and primary hepatocellular carcinoma worldwide. The HBV genome is organized in four major overlapping open reading frames (ORF): S, C, P and X. ORF S has three initiation codons which define three regions S, Pre S2 and Pre S1.

In this study we looked for genetic variations in genes S and P of HBV isolates from Tunisian patients. HBV serological markers were detected by ELISA and viral DNA was amplified by PCR using a single pair of primers specific to the overlapping sequence common to S and P. DNA sequencing was performed using Big Dye Terminator technology. Serologic data from 41 patients showed all patients except one were positive for HBsAg. The over all prevalence of HBeAg was 21. 9%. PCR results indicated that 48. 7% of the patients were positive for HBV DNA including the HBeAg positives. Ten sequenced amplicons showed all corresponding isolates to be of the D genotype. A characteristic profile of point mutations at the DNA level was found for each isolate and a 9 bp deletion in one isolate. It is noteworthy that some of these mutations were significant in ORF S but silent in ORF P and vice versa. Amino acid substitutions in the major hydrophilic region of the small S protein were identified in three isolates. The nine bp deletion was found to correspond to a three amino acids deletion in the middle protein and another point mutation was observed at the preS2 start codon in the middle protein of the same isolate. Several mutations were identified in the P protein of all isolates, most of them being located in the spacer domain. Four mutations were located in the conserved RT domains and two in the conserved motif. In conclusion, we describe for the first time a set of mutations located in highly conserved regions of both the polymerase and surface antigen proteins.

**P 112 Study of Interleukin-10 polymorphism in chronic hepatitis B infected subjects**

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**Introduction:** Infection by hepatitis B virus (HBV) is a public health disease because of its high incidence and risk of transition to chronicity. In many cases, these chronic forms can be complicated by cirrhosis and liver

cancer involving life-threatening. Contributing factors to chronic transition are not yet well understood. They would mainly involve the role of certain cytokines and the host genetic susceptibility. Tunisia is ranked among the intermediate endemicity regions with 4-7% of HBsAg chronic carriers. No data are currently available in the country regarding the immunogenetic factors' role in the evolution of this chronic infection.

**Aims:** This work aims to study the *IL-10* gene polymorphism in chronic hepatitis B carriers and to investigate a possible association between a specific genotype and this evolutive stage of the infection.

**Methods:** It is a case-control study which has covered 156 chronic HBV infected subjects and 174 controls. Genotyping was performed by the TaqMan allelic discrimination technique at two SNPs -592 A/C and -1082 A/G in the *IL-10* gene promoter. Titration of IL-10 was done by enzyme immunoassay in inactive carriers and their controls. Statistical analysis was done by the SPSS software. Differences are considered as statistically significant when p values were less than 0.05.

**Results:** Our population consisted of 43 inactive carriers, 51 cases of chronic active hepatitis, 34 cirrhotic and 7 cases of hepatocellular carcinoma. The mean age was 46 years and was significantly higher in subjects with advanced stages of the infection. A significant association was found between clinical stage and viral load or with transaminases.

The main results concerning the genotype polymorphism study were as follows. For each SNP studied, three different genotypes were detected in all studied population: -592AA (13.6%), -592AC (43%), -592CC (43.3%), -1082AA (41.3%), -1082AG (44.7%), -1082GG (14%). The -1082 genotype was significantly more frequent in chronic HBV infected patients than in controls (18.1% vs. 10.4%,  $p = 0.046$ ). However, no associations were found concerning the other genotypes between cases and controls, nor for all genotypes with viral loads and transaminase levels. The IL-10 concentration was significantly higher among inactive carriers than in controls (3.27 vs. 2.56 pg/ml,  $p = 0.002$ ). An association between genotypes and levels of IL-10 was also found: genotype -592CC and -1082GG was associated with significantly higher levels of IL-10. Lower concentrations of IL-10 were, however, found in -592AA genotypes subjects.

**Conclusion:** Our study confirms the role of IL-10 and the involvement of SNPs -1082 A/G and -592 A/C in the corresponding gene promoter in the evolution of chronic hepatitis B infection. Our results support a follow-up of HBsAg chronic carriers by titration of IL-10 and by a study of the genetic polymorphism.

**P113 Reactivation of hepatitis B virus infection: Five clinical observations**

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**Background:** the natural history of hepatitis B virus (HBV) infection depends mainly on the host's immune system. The reactivation of the HBV infection is common in chronic hepatitis B surface antigen (HBsAg) positive patients but can be also observed after a recovered acute infection or in patients carrying anti-HBc antibody. This reactivation can occur spontaneously or in various immunosuppressive states like malignancy, chemotherapy or immunosuppressive therapy. It is associated with a high rate of morbidity and mortality.

**Case description:** Here, we report 5 cases of patients who developed an hepatitis B reactivation. At baseline, 4 patients were HBsAg negative including 3 patients with only anti-HBc antibody and 1 patient with negative HBV serology. A spontaneous hepatitis B reactivation was observed in a patient with chronic kidney disease on maintenance hemodialysis which was asymptomatic. The 3 others patients developed a HBV reactivation in a period ranging from 2 weeks until 10 months after the end of combination chemotherapy for hematological malignancies. Two of them were symptomatic with fulminant hepatic failure and death in one case. HBV serology showed the reappearance of HBsAg ± HBeAg/ IgM anti-HBc with massive rises in hepatic transaminases and rising levels of serum HBV DNA.

The fifth case was HBsAg positive at baseline with presence of a low viral replication. He received chemotherapy for a B-cell lymphoma and developed an acute hepatitis due to HBV reactivation 3 months after the end of treatment. Viral load was detected at very high levels.

**Conclusion:** Reactivation of viral hepatitis B may be life-threatening particularly during immunosuppressive states. Patients with hematological malignancies and other cancers require a precise assessment of their hepatitis B status and adequate management by close viral load monitoring. Therefore, baseline HBV serology is recommended for all patients receiving chemotherapy and immunosuppressive drugs, and HBs Ag positive patients should receive anti-HBV prophylaxis to decrease virus reactivation and death rates.

**P 114 Side effects of Interferon alpha 2a in the treatment of chronic viral hepatitis B**

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**Objective:** To describe side effects of interferon  $\alpha 2a$  (IFN  $\alpha 2a$ ) in patients with chronic hepatitis B (CHB).

**Methods:** We conducted a descriptive, retrospective study of clinical and biological side effects of IFN  $\alpha 2a$ , in patients with CHB followed in 2 Infectious Diseases units in Sousse and Sfax from January 2001 to June 2010.

**Results:** Fourty six patients, 37 males and 9 females (sex-ratio 4), mean age 36 years, assigned either conventional (14 patients) or pegylated (32 patients) INF  $\alpha 2a$  for CHB. Thirty eight patients (80%) developed one or more side effects, mainly flu-like syndrome (38 cases, 80%). Psychiatric disorders and weight loss were observed in 8 (18%) and 4 patients (9%) respectively. Alopecia and local reaction in the site of injection were observed in 2 cases (4%) each. Twenty five patients (54%) had thrombocytopenia (median, 119000/mm<sup>3</sup>), 11 patients (23%) had neutropenia (< 750/mm<sup>3</sup> in 2 cases), and 14 patients (30%) had hepatic cytolysis (median, 200 UI/L). There was no significant difference between conventional and pegylated INF  $\alpha 2a$  regarding the frequency of side effects. The majority of clinical and biological side effects were observed within the first weeks of treatment. INF  $\alpha 2a$  was stopped because of side effects in 2 patients (4%) who developed neutropenia, and the dose was decreased in 3 patients (7%) who developed thrombocytopenia.

**Conclusion:** Side effects are frequent in patients treated with INF  $\alpha 2a$  for CHB. The most common are flu-like syndrome, psychiatric symptoms; neutropenia, thrombocytopenia and cytolysis. However, discontinuation of treatment was necessary in only 4% of cases.

**P 115 Occult hepatitis B infection in hepatitis C positive patients from Tunisia**

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**Introduction:** Occult Hepatitis B is defined as ongoing infection with Hepatitis B Virus (HBV) with detectable HBV-DNA and undetectable HBV surface antigen (HBsAg). It can be related to low HBV replication, detectable only by molecular tests. Occult HBV was also

associated to mutations in the S-gene, coding for the major surface protein. It was reported in all categories of HBV infected individuals (chronic hepatitis B, asymptomatic carriers ...) but is more frequent reported in hepatitis C positive patients. We have recently reported that 17% of Tunisian hepatitis C positive patients have an ongoing HBV infection that is in its occult form in most of cases (12%) (Ben Halima et al, 2010).

**Methods:** In the present work, we analyzed HCV and HBV replication levels in 97 co-infected patients, 36 have a patent HBV infection with detectable HBsAg and 61 have an occult infection. HBV and HCV viral loads were assessed by Real-time PCR (COBAS TaqMan HCV and COBAS TaqMan HBV, Roche Diagnostics). The genetic variability in the S-gene was studied by sequencing of the entire S-gene.

**Results:** High HCV replication levels (>5. 10<sup>5</sup> IU/ml) were found in 67% of patients with occult hepatitis B vs. 41% of those with patent HBV infection. HBV viral loads were very low in almost all co-infected patients, whether they had patent or occult infection. Sequencing of the S-gene, performed in 25 patients with occult HBV infection, revealed very few mutated isolates in the region coding for the "a" antigenic determinant, located between amino acids 124 and 147 of the S protein.

**Conclusion:** This work shows that HCV/HBV co-infected patients generally have low HBV replication and suggest that the non detection of HBsAg is more likely due to a suppressive effect of HCV on HBV replication than to genomic mutations that alter the antigenic characteristics of the surface protein.

**P 116 Study of Genetic Markers of Susceptibility to Viral Hepatitis Infections B and C**

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**Background and Aim:** Chronic diseases caused by hepatitis B virus (HBV) and Hepatitis C virus (HCV) may evolve towards major complications as liver cirrhosis and cancer. Only subsets among acutely infected individuals develop persistent disease suggesting that genetic susceptibility may influence the establishment of chronicity. Most susceptibility studies analyze chronic hepatitis B and C separately. The aim of our study is to characterize genetic differences and commonalities in patients infected with HBV or HCV in a country of intermediate endemicity for both viruses.



**Study Design:** A set of 12 SNPs in genes considered as important players in immune response (*CD209*, *CCL2*, *CCR5*, *Mx1*, *CXCL12*, *TGF $\mu$ 1*, *SUMO1* and *UBC9*) was analyzed in 120 HCV patients, 120 HBV patients and 168 healthy controls using a PCR-RFLP approach.

**Results:** Among the salient features of our survey was the close genetic relatedness of patients infected either with HBV or HCV, suggesting that both diseases rely on similar host genetic bases. By contrast, the distribution of polymorphisms displayed significant differences or trends between patients and controls, indicating that both populations (B and C) contributed to these differences. Polymorphisms significantly associated with chronic hepatitis were *TGF-*, variant (rs1800470,  $p < 0.0001$ ) and *CXCL12* variant (rs1801157,  $p = 0.0223$ ). Furthermore, we found an association of *CD209-336* variant (rs4804803,  $p = 0.0089$ ) with hepatitis infection. This variant regarded so far as primarily involved in *Flaviviridae* infections, was found to be more frequently associated with HBV than with HCV infection (88 vs 80%,  $p = 0.0287$ ).

**Conclusions:** Our results indicate that in an ethnically homogeneous population, carriers of susceptibility alleles are likely to be at risk for chronic viral hepatitis B and C. In addition, we suggest that polymorphic lectines present on dendritic cells and macrophages play a significant role in HBV persistence.

#### **P 117 Serological status of the health care workers and source patients in percutaneous exposure accidents**

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**Introduction:** Three pathogens account for most cases of occupationally acquired blood-borne infection: hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV). The appropriate management of health care workers (HCWs) following exposure requires the collection of specific detailed information regarding the source patient's serostatus and the baseline immune status of the exposed. This study aims to estimate the risk of transmission of these blood borne pathogens through the analysis of serological results in HCW and source patients at the time of exposure.

**Methods:** We analysed results of HIV, HBV and HCV of serological tests performed in cases of occupational exposure to blood and body fluids that occurred in Farhat Hached Hospital between 1st January 2010 and 29 February 2012. Serology was performed using automated microparticle enzyme method.

**Results:** 150 percutaneous injuries were reported. All exposures were to blood. Sera of the source patient were available in only 49.3% of cases. When it was known,

10.8% of source's sera were positive to one or more viruses. Serological tests in the source patient were positive to HBsAg and Anti-HCV in, respectively, 6.7% and 2.7% of cases. In HBV infected source patients, one was positive for HBeAg. Isolated anti-HBc IgG positivity was found in 10.8% of cases. One source patient had positive HIV serology. No HCV-HBV coinfection was retrieved. In HCWs, 57.3% had vaccinal immunity, 20.6% were naturally immunised, and 0.6% were HBsAg positive. In all cases of exposition by HBV infected source, victims were immunised against HBV. No seroconversion to HIV, HBV or HCV infection was observed among followed-up HCWs.

**Conclusion:** The important risk of HBV infection in Tunisian HCWs is well known in a country of intermediate endemicity. However, insufficient rates of immunity persist in HCWs, this indicating the need of reinforcing vaccination programs and controls after vaccination. The real risk of HIV and HCV infection should be considered, and efforts are needed to educate and inform HCWs.

#### **P 118 Analysis of risk factors for HCC development in Tunisia**

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**Introduction:** Hepatocellular carcinoma (HCC) is one of the major causes of morbidity and mortality in the world. It represents the third leading cause of death, by cancer, in males and the fourth in females. Risk factors implicated in HCC development are several, such as viral infections by hepatitis B and hepatitis C viruses (HBV and HCV), diabetes and metabolic liver diseases. In Tunisia, HCC is responsible for 1.1% of deaths due to cancer; its incidence is estimated to approximately 1 to 2 cases per 100,000 habitants reported per year. Up to now, few data are available about risk factors for HCC development in our country. The aim of this study is to assess the role of HBV, HCV and diabetes mellitus in HCC genesis in Tunisia.

**Methods:** It is a prospective case-control study which included 60 Tunisian HCC patients and 120 control subjects without hepatic diseases. The history of Diabetes and alcohol consumption was searched for all patients. Serological markers, in particular HBsAg, antibodies against HBsAg, HBcAg and HCV, were assessed, by commercial kits using enzyme-linked immunosorbent assay (ELISA). For patients positive for anti-HCV and/or HbsAg, molecular tests were conducted to detect the presence of viral genome with genotyping. They based on PCR-hybridization for HCV and PCR-RFLP in the pre-S region for HBV. Statistical analysis was done by the SPSS software. Differences are

considered as statistically significant when p values were less than 0.05.

**Results:** The mean age of patients was 66 years old and sex ratio M:F was 1.22. Sixty percent of HCC patients were positive for anti-HCV and 17.9% for HBsAg. Diabetes was detected in 18% of cases. Odds ratio (OR) and 95% confidence intervals (CI) were 32.0 (15.8 - 65.0), 7.2 (3.2 - 16.1) and 8.0 (3.1 - 20.0) for anti-HCV, HBsAg and diabetes respectively. Multivariate analysis indicated that the three studied factors were independent. Predominant genotypes were genotype 1b for HCV and genotype D for HBV. Chronic HCV was significantly associated with cirrhosis. Excessive alcohol consumption was reliably established for 19 (17.6%) cases among the HCC patients for whom data is available.

**Conclusion:** HCV and HBV infections and diabetes are the main determinants of HCC development in Tunisia. An active surveillance and secondary prevention programs for patients with chronic hepatitis and nutrition-associated metabolic liver diseases are the most important steps to reduce the risk of HCC in the region.

**P 119 Subtyping Genotype 2 Hepatitis C viruses from Tunisia: identification of two probable new subtypes.**

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**Introduction:** HCV variants were classified into six genotypes (1-6) and several subtypes with different geographical distribution worldwide. Several methods were used for HCV genotyping, the most accurate ones use sequence analysis of variable genomic regions (Core, E1 and NS5B principally). However, there is still no consensus on a unique standard region for genotyping. Non-sequencing methods, especially those available as commercial kit such as the InnoLIPA probe hybridization test, are frequently used for routine HCV genotyping, despite their limitations to distinguish subtypes within some genotypes, especially Genotype2. Non-sequencing methods also can not identify new genotypes or subtypes that can emerge or circulate in a newly investigated region of the world.

**Methods:** In this work, 89 isolates from Tunisian patients, typed as of Genotype2 by InnoLIPA, were sequenced in the NS5B and Core/E1 regions and compared to the reference sequences representing the different HCV genotypes and subtypes.

**Results:** All isolates clustered with the Genotype2 reference sequences and the phylogenetic analyses in the two studied genomic regions were perfectly concordant:

89% of the sequences clustered with the 2c reference sequence, few isolates grouped with the 2k (n=10), 2i (n=5) and 2b (n=1) reference sequences and 15 isolates did not match with any of the reference sequences. The 15 unclassified sequences divided into two separate clusters with high bootstrap values in both genomic regions.

**Conclusions:** This work shows perfect concordance between the NS5B and the Core/E1 region suggesting that any of the two regions can be used for genotyping and that intergenotypic and intragenotypic recombinants are rare, at least for HCV isolates from Genotype2. The present work also shows large predominance of Subtype 2c among Genotype2 isolates circulating in Tunisia; it also reports minor co-circulating subtypes (2k, 2i and 2b) and proposes the possible existence of two new subtypes, not yet identified in other regions of the world.

**P 120 The steatosis during chronic viral hepatitis C with genotype 1: frequency and correlation with metabolic parameters**

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**Introduction and goal:** Association between viral chronic hepatitis C and steatosis was clearly shown for genotype 3. The goal of work is to study the frequency of the hepatic steatosis among patients having a chronic viral hepatitis with genotype 1 and to show if there is a possible correlation between the hepatic steatosis and metabolic abnormalities

**Material and methods:** It is a retrospective study in which we included the patients followed for chronic viral hepatitis C (genotype 1). We retained the patients who had a liver biopsy and a complete blood metabolic profile (glycaemia, cholesterol, triglycerides)

**Results:** 67 patients were included (26 men and 41 women), with a mean age of 47.3 years. The mean body mass index was 26.4. On the liver biopsy, a steatosis was noted among 30 patients (44.8%). The patients presenting a steatosis were older (48.6 versus 46.3 years) and of generally female sex (70% versus 54%) compared to those not presenting a steatosis. In the same way, the patients having a steatosis had an average weight more raised than those without steatosis (non significant difference). However no difference was observed as for the values of the metabolic profile between the patients with steatosis compared to those not having.

**Conclusion:** The steatosis is frequent among patients having viral chronic hepatitis C of genotype 1. This steatosis is not correlated with the weight nor with metabolic abnormalities of the patient, supporting the assumption that this steatosis would be viro induced

**P 121 Therapeutic response to peg interferon alfa-2a and ribavirin in patients with chronic hepatitis C**

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**Objective:** To assess therapeutic response to standard of care (SOC) therapy: peg interferon (PEG IFN) -2a plus ribavirin, in patients with chronic hepatitis C (CHC).

**Methods:** We conducted a retrospective, descriptive study of the virological response to SOC therapy in patients followed in our department for CHC between January 2005 and December 2011. Early virological response (EVR), end of treatment virological response (EOT VR), and sustained virological response (SVR) were analyzed. Complete treatment duration was 48 weeks in genotype 1, and 24 weeks in genotypes 2 and 3. Treatment success was defined as SVR (undetectable HCV viral load 6 months after the EOT).

**Results:** Fifty two patients, 17 males and 35 females (sex-ratio 0,5), mean age 50 years, received SOC therapy for CHC. Thirty five patients (67%) were infected with genotype 1 HCV, 30 of whom received 48 weeks of treatment ; and 17 patients (33%) were infected with genotype 2 or 3 HCV, 16 of whom received 24 weeks of treatment. Overall EVR and EOT VR were 92% and 87%, respectively. SVR was 67%, with 57% in patients with genotype 1 CHC, and 80% in patients with genotype 2 or 3 CHC. The most common side effects were influenza-like syndrome (50%), thrombocytopenia (38%), neutropenia (35%), anemia (26%) and psychiatric disorders (3%). Treatment was stopped because of side effects in 3 cases (8%).

**Conclusion:** Overall therapeutic success was obtained in two third of patients treated with PEG IFN -2a plus ribavirin for CHC. This rate was better in genotypes 2 and 3 compared to genotype 1. Side effects were frequent (67%) but rarely (8%) responsible of discontinuation of treatment.

**P 122 Frequency of the thyroid abnormalities during viral chronic hepatitis C**

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**Introduction and goal:** The thyroid abnormalities are frequent during viral chronic hepatitis C and belong to the hepatic extra demonstrations of this infection. The prevalence of these anomalies varies between 30 and 50%. The goal of our work is to specify the frequency of the thyroid anomalies among patients having viral chronic hepatitis C

**Material and methods:** We included the patients having

the diagnosis of viral chronic hepatitis C. All them patients profited from a proportioning of the TSH, T4 with a research of thyroid antibodies (anti-thyroperoxidase auto antibodies and anti thyroglobulin autoantibody) before any antiviral treatment. During the follow-up under treatment, a thyroid assessment (TSH, T4) is carried out every 3 months.

**Results:** we included 82 patients (34 men and 48 women), of average age 46.4 years. The thyroid starting assessment was pathological in 8 cases (10.4 %). Seven patients had a hypothyroidism and 1 a hyperthyroidism. The thyroid antibodies were normal in all patients. The patients having anomalies of the thyroid t were followed and treated by a endocrinologist and the antiviral treatment was begun after equilibration of their thyroid function. During the follow-up under treatment (interferon + ribavirin), no patient among those having a pre antiviral treatment anomalies worsened their thyroid function. One patient developed a hypothyroidism during treatment. He has been treated by Levothyrox<sup>(R)</sup> and antiviral treatment has been continued

**Conclusion:** The anomalies of the thyroid are frequent during viral hepatitis C. They does not contre indicate the antiviral treatment, but must be treated as preliminary. We suggest a careful monitoring of thyroid function in patients treated by interferon.

**P 123 Seroprevalence of hepatitis E in hemodialysed patients**

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Hepatitis E virus (HEV) is a small non-enveloped RNA belonging to the *Hepeviridae*. It's mainly transmitted by fecal-oral route and is responsible of an acute hepatitis generally in young adults. Recently, different studies reported the risk of a parenteral transmission for the virus and a chronic evolution for the infection especially in immunodeficient patients. In Tunisia, few data are known about hepatitis E with discordant results reported previously; it seems to be a sporadic infection and up to now the mode of transmission remains unidentified.

The aim of this study is to evaluate the risk of parenteral transmission of the HEV, particularly in hemodialysed patients. For that, seroprevalence of specific antibodies was estimated in this type of population and compared to what observed in healthy persons.

**Methods:** Our population is composed by 227 hemodialysed patients and 276 healthy persons with 52.7 years old as mean age. Specific IgG were detected by an immunological assay commercialized by Global Diagnostics (IgG anti-HEV). Seroprevalence was compared between the two groups. Statistical analysis was performed by the chi-square; difference is considered as significant when p is under than 0.05.



**Results and discussion:** IgG seroprevalence was significantly higher in hemodialysed patients compared to healthy subjects; it was estimated to 10.6% and 4% respectively. Our results are in concordance with those reported in Japan where HEV seroprevalence was evaluated to 19%. In Greece, high proportion of IgG positive was reported in hemodialysis than in general population (4.8% and 0.26% respectively).

**Conclusion:** Hepatitis E can be transmitted by blood and hemodialysed patients constitute a group of high risk for which prevention for the infection is recommended.

**P 124 Clarification on the Epidemiologic Situation of the Rubella Virus in Tunisia (2011-2012)**

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The rubella virus is a cause of contagious and immunizing infections with worldwide distribution. These infections evolve with sporadic mode and tends to peak during the late winter and especially in spring. They are usually benign unless they affect seronegative pregnant women early in their pregnancies. The malformatives fœtopathies in this case are very common and can be very serious.

The aim of this study is to make a clarification on the epidemiological situation of these infections during the period January 2011- beginning March 2012, based on the results of the serological surveillance made by the reference laboratory represented by the virology unit of the Charles Nicole's Hospital.

During our period of study, 2069 sera from patients with fever and rash were examined by the research of anti-rubella IgM antibodies using immunocapture ELISA (Platelia Rubella IgM BIO-RAD).

1108 tests were positives (53.5%) with 1028 during 2011. this number is much higher than in previous years (158 in 2008, 98 in 2009 and 145 in 2010). The sex-ratio is estimated at 1.29. The study of the evolutionary aspect of the positive cases showed an evolution in endemic mode with significant epidemic peaks between early May and mid June. This proves that there is a major epidemic activity of rubella infections during this period. Thus, an increased incidence of congenital rubella syndrome cases is very likely. It must be sought by a regular census of these malformations.

The situation during this period suggests that rubella infection will most likely continue to occur in epidemic way in the coming months of spring despite the vaccination campaign that began in 2005 and despite the impregnation of the Tunisian population by rubella viruses during 2011.

Strengthening the surveillance of pregnant women and the vaccination campaign are very important keys to pass this outbreak period without major impact.

**P 125 Rubella outbreak in Sfax, Tunisia during 2011**

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Apart from the congenital infection, rubella is a mild viral disease that usually occurs during childhood. Exceptionally, rubella is responsible for serious complications. It usually occurs in a seasonal pattern, with epidemics every 5-9 years.

In Tunisia, the vaccination of children is not systematic. Since 2005, rubella vaccine has been used in a selective strategy (direct protection to women and schoolgirls) in order to fight against the congenital rubella syndrome (CRS).

In 2011 a large rubella outbreak occurred in Tunisia involving severe cases.

The objective of this study is to assess this epidemic from January to December 2011. During this period, 2861 sera were received for suspicion of primary infection, or assessing immunity (pre-marriage counseling, pregnant women) or for screening CRS. Cerebrospinal fluid was also tested for neurological cases. We used enzyme linked immunoassays for IgM (Biorad-France, DiaSorin-Italy), IgG (Vidas-France) and for IgG avidity (Euroimmun-Deutschland). One hundred forty two patients were confirmed positive for rubella. They included:

32 pregnant women (age between 22 and 35 years, gravidity between 1 and 4, gestational age between 2 and 34 weeks) among them 10 were symptomatic.

2 CRS.

19 severe cases (13,4%): 16 encephalitis (13 males, 6 females) and 3 purpura (2 males, 1 female)

89 other cases: composed of 68 males (9 months- 32 years) and 18 females (5-32 years).

Globally, sex ratio was 1,35. Age was available for 49 males and 34 females. Twenty six males are aged between 11 and 20 years and 26 females aged between 20 and 35 years.

The difference in age group between both sexes could be related to the selective vaccination strategy. We noticed a slight male predominance. The number of severe cases was unusually high (number of severe cases varied from 1/500 to 1/6000 in literature).

Measures like catch up campaigns and improved immunization are important to prevent further spread of the outbreak.

**P 126 Prevalence of primary rubella infection among pregnant women in Monastir during the 2011 Tunisian outbreak**

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**Objective:** Rubella is an important public health problem owing to teratogenic effects that can result from primary rubella infection during the first trimester of pregnancy, leading to miscarriage, stillbirth or congenital rubella syndrome. Rubella outbreaks have a worldwide distribution and tend to occur in epidemics in non-immunized population every 6 to 9 years. In Tunisia, a rubella outbreak occurred in 2011, and the aim of this study was to determine the prevalence of primary infection in pregnant women in Monastir during this period.

**Material and methods:** This retrospective study involved 16 sera of pregnant women tested for rubella infection in the teaching hospital of Monastir during the outbreak period, and which IgM were positive. To confirm primary rubella infection, we collected clinical and serological features: all women with a history of maculopapular rash or adenopathy and/or having an IgG seroconversion, were considered as primary rubella infection. IgG index avidity was performed in two asymptomatic women without IgG seroconversion and was significantly high excluding primary infection. All serologic tests were performed using enzyme immunoassay techniques.

**Results:** Of the 16 women, 14 were identified as primary rubella infection. The first case was picked on February and the last one on August, with 57% of cases occurring between Mars and June. Among the 14 cases of primary infections, 8 were confirmed by the presence of an IgG seroconversion, and 6 presented maculopapular rash. Four cases were diagnosed in the first trimester of pregnancy, and 2 were before the 11<sup>th</sup> week of gestation. Medical abortion was undergone in all 4 women.

**Conclusion:** Rubella still causing large damages in our area especially in pregnant women. These findings demonstrate that the national program of vaccination targeting only young girls is far from being sufficient to prevent from such outbreaks. We actively recommend to include MMR vaccination to both girls and boys at the age of 18 months, and to immunize all non-immunized women of childbearing age.

**P 127 Rubella in pregnancy**

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**Introduction:** The incidence of rubella during pregnancy is 1 to 4 per 10,000 births. This condition can be easily

prevented by vaccination of all seronegative young women.

**Patients and methods:** We conducted a retrospective study over 6 months in the department of Gynecology and Obstetrics at Farhat Hached Hospital Sousse from 1<sup>st</sup>/01/2011 to 30/06/2011 with the conjunction of a national epidemic of rubella.

**Results:** Of the 110 suspected cases of fever and rash in pregnant women and after proper investigation only 62 cases were confirmed, including 43 (63%) from the Governorate of Soussa. 89% of confirmed cases have been established as contamination before 18 weeks of pregnancy and were sanctioned by medical termination of pregnancy, after unanimous decision of the multidisciplinary staff. After this term, the pregnancy was continued with ultrasound monitoring until delivery. The pathological examination of abortion products found poly malformation syndrome suggestive of congenital rubella in 91% of cases. For newborns, rubella serology was negative in all cases.

**Conclusion:** According to the National Immunization Program of the first half of 2011, the country experienced a large rubella outbreak (726 cases confirmed by serology on 1173 cases of eruptive fevers) over 3 times the number of reported cases during the same period the year before. Those cases resulted in neurological complications of varying severity in more than 50 cases. Technical Committee on Immunization has, therefore, recommended to advance the age of vaccination against rubella and to benefit both boys and girls. The primary maternal rubella infection is especially serious for a term which may lead to early medical abortion. Vaccination should be generalized to all women of childbearing age. This epidemic has been discussing the catch-up immunization in premarital.

**P 128 Acute encephalitis complicating rubella: four case reports**

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**Introduction:** Infection with rubella virus is usually a mild self-limited febrile illness. Neurological complications are rare. Encephalitis is a rare complication of rubella with an incidence that has been reported to range from 1/4300 to 1/24000.

**Patients and methods:** We report four pediatric cases of acute encephalitis complicating rubella during an epidemic of rubella between March 2011 and November 2011 to the Fattouma Bourguiba Hospital. The diagnosis is based on neurological symptoms started 1 to 5 days after rubella rash and the presence in serum and CSF of immunoglobulin M antibody against rubella virus

**Results:** Three males and one female were included with a mean age of 9 years (7- 12 years), rubella vaccine have been given only for two patients. Macular rash was reported in three cases. The most clinical symptoms were: headache, fever, loss of consciousness and seizures. Biological investigations showed normal blood cell count, negative C-Reactive-Protein. Serum immunoglobulin (Ig) M antibodies against rubella virus were present in all cases. In all cases cerebrospinal fluid (CSF) analysis reveals clear fluid, lymphocytic pleocytosis, elevated protein levels and normal glucose levels and the presence of immunoglobulin M antibodies against rubella virus. Electroencephalogram (EEG) showed slow wave activity in all cases and computed tomographies of the brain (CT) were normal. Mechanical ventilation was needed in 3 cases given an impaired state of consciousness. Acyclovir was administered intravenously for all patients given the initial concern of herpes simplex encephalitis. All patients had received antiepileptic drugs to treat convulsions. Clinical evolution was favourable in all cases with full neurological improvement.

**Conclusion:** In Tunisia a revision of our vaccination programme against rubella is needed. Benefits and costs of a non-selective vaccination strategy including all children and all women of childbearing age must be weighted to prevent such a severe complication. Viral encephalitis should be considered when it is a matter of convulsion and impaired consciousness in children.

**P 129 Acute encephalitis complicating rubella**

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**Introduction:** Encephalitis as a neurological complication of rubella is rarely reported. Incidence, prognosis and severity of sequels are still unknown.

**Materials and methods:** During an outbreak of rubella in Tunisia in 2011, we report four cases of encephalitis complicating the course of primary rubella infection, hospitalized in the infectious disease department of Fattouma Bourguiba hospital.

**Results:** Three men and one woman, aging between 24 and 41 years, were admitted for altered level of consciousness accompanied in two cases by a generalized tonic-clonic seizure and by a post-critical coma in one case. In three cases, a generalized maculopapular rash and a fever were noted in a delay of 3 to 7 days before admission. Glasgow coma scales in admission ranged between 5 and 13 necessitating in two cases mechanical ventilation. Cranial computed tomography scan showed a discrete temporal lobe hypodensity and congestive brain in one case and was normal in the three others. Magnetic Resonance Imaging done in one case showed signal abnormalities of the

splenium of corpus callosum. Cerebrospinal fluid analysis revealed lymphocytic meningitis in two cases and was normal in other cases. All patients received initially Acyclovir treatment, which was continued until the diagnosis of rubella primary infection was established on the detection of rubella-specific IgM in the serum. The final diagnosis was meningo-encephalitis in 2 cases and encephalitis in the two others. Clinical evolution was favorable in all cases and no neurological sequels were observed after a mean follow-up of five months.

**Conclusion:** We conclude from this series the interest of a systemic search for rubella IgM in case of encephalitis, in context of rubella outbreak, even if a history of rash is missed.

**P 130 Epidemiological study of Respiratory Syncytial Virus (RSV) infections in infants hospitalized in a tunisian pediatric intensive care unit (2011 – 2012)**

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Respiratory Syncytial Virus (RSV) is an RNA enveloped virus belonging to the family of *Paramyxoviridae*, with two groups A and B. This agent affects particularly infants and young children and may give severe forms requiring hospitalization in intensive care units.

Our study has as purpose to detail the epidemiology of RSV infection in infants hospitalized in intensive care unit of the Children's Hospital of Tunis.

239 respiratory specimens were collected from infants hospitalized in intensive care unit of the Children's Hospital of Tunis and presenting acute respiratory infections from January 2011 to February 2012; 23 of these specimens were bronchoalveolar lavages and 216 were nasopharyngeal samples. RSV detection was conducted at first-line by Immunochromatographic test "Quick Vue RSV test-Biomérieux". Negative samples were treated then by multiplex PCR using the Luminex technology.

From studied samples, 95 (39,7%) were positive for RSV. 83 (87,4%) of positive samples were detected by rapid test. The Luminex technique confirmed the rest of the positive samples (12= 12,6%). Infants with confirmed RSV infection have an average age of 2 months and 2 days (range 15 days to 6 months).

In addition to dyspnea, the most frequently clinical sign observed in positive cases, is cough which is founded in 90% of infected patients, fever was reported in only 54% of cases and radiological defects was described in 56%. Only one patient developed a cardio-vascular failure with metabolic acidosis.

RSV infections are evolving as winter epidemics that start in October-November with a maximum of cases in



December-January and extend over a period of 5 to 6 months. The epidemic peak seems to be inhibited by the appearance of Influenza viruses. The epidemiological evolution in our study was quite similar to data described in the literature.

RSV is the third leading cause of infant mortality by lower respiratory tract infections after pneumococcal and Haemophilus influenza. So it deserves the development of an effective monitoring system on a large scale and the development of a vaccine that seems imminent.

**P 131 Epidemiological study of Influenza viruses infections at the middle season 2011-2012 in Tunisia**

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**Introduction:** In Tunisia, this monitoring is provided by a network of sentinel physician in the various governorates and by the National Influenza Center represented by the Virology Unit of Charles Nicolle's Hospital in Tunis collaborating with WHO network.

The aim of this study is to make a status report on the 2011-2012 flu season in mid February 2012.

**Material and Methods:** From October up to mid February, several health institutions sent to the reference laboratory 305 respiratory samples essentially nasopharyngeal from patients presenting an Influenza Like Illness (ILI) using a suitable viral transport medium (VIRCELL®). These samples were examined by reverse RT-PCR using the CDC Atlanta protocole targeting the M segment of influenza A viruses, the M segment of influenza B viruses, HA segment of Influenza A/H1N1pdm and the HA segment of influenza A/H3N2. A phylogenetic study was performed on eight strains by partial sequencing of the HA segment.

**Results:** The result of the monitoring to date shows low influenza activity compared to the seasons following the pandemics of 2009. Influenza viruses detected are exclusively seasonal A/H3N2. This is quite logical since influenza A/H3N2, A/H1N1pdm and B co-circulate and in addition, since the 2009 pandemic, the Tunisian population has been probably immunized against A/H1N1pdm either by vaccination or by infection. In the literature, outbreaks of A/H3N2 occur every 3-5 years.

A peak detection of influenza viruses has been described between late December 2011 and early January 2012. This could be all the activity of this season but can be also the beginning of a more important activity.

The phylogenetic study shows that the circulating strains belong to the Victoria/208 clade that is different from the vaccine strain.

**Conclusion:** Surveillance of influenza viruses to mid February 2012 revealed a low and exclusive activity A/H3N2. The circulating strain is different from that

included in the vaccine. This explains the relative failure of vaccine coverage this year. Monitoring in the coming months will allow us to know whether influenza activity remain low or resume.

**P 132 Molecular detection and identification of Influenza viruses in Casablanca during 2010-2011.**

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The influenza virus is a major viral respiratory pathogen that causes yearly epidemics in tropical and subtropical countries every winter, and associated with significant morbidity and mortality. The objective of this study was to determine the human influenza virus genotypes circulating in Casablanca during the season 2010-2011 based on analysis of the Hemagglutinin (HA) and Neuraminidase (NA) sequence gene.

Nasopharyngeal swab specimens were collected by physicians from outpatients with clinical evidence of influenza-like illness (ILI) in Casablanca. The influenza viruses were screened by: real-time PCR and the positive ones were inoculated into MDCK cells and subjected to HA1 and NA gene sequencing. The obtained sequences were aligned and compared to the reference sequence available in the GenBank database.

A total of 273 specimens were collected and analyzed from November 2010 (week 45) to March 2011 (week13). A total of 84/273 samples (30.76%) were positive for influenza viruses, of which 29 (10, 62%) were A (**H1N1**) **pdm09**, 20 (7, 32%) A (**H3N2**) and 32 (11, 72 %) influenza **B**. During the same period, 46 (16.84%) samples were positive for respiratory syncytial virus. Since week 45/2010, 33 influenza viruses have been characterized by nucleotide sequencing: 16 were A/California/7/2009(H1N1)-like; 14 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage); 05 were A/Perth/16/2009 (H3N2)-like. The nucleotide sequences obtained from this study were submitted to GenBank database under the following accession numbers CY099721 to CY099725 for HA1 (H3) and CY099726 to CY099739 for HA1 (B) and CY099740 to CY099768 for HA1 and N1 (H1N1) **pdm09**.

In conclusion, surveillance of influenza viruses and molecular characterization of the hemagglutinin and neuraminidase glycoproteins is necessary for annual updating of the vaccine composition coordinated by WHO and providing important and timely information on the appearance of strains with pandemic potential as the new virus A(**H1N1**)**pdm09**.

**P 133 Clinical epidemic analysis of A (H1N1) FLU concerned with 42 cases (patients) in consultation during the 2011 year.**

A. ZERTAL

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**Introduction:** The A H1N1 FLU is a contagious acute respiratory disease caused by the virus of the flu. This virus reappeared in 2009 as a new genetic form with an important virulence, man to man transmissible. The resultant epidemic was stated (called) pandemic by the WHO: World Health Organization in 2009.

**Objectives:** The aim of this study is to show that the A H1N1 Flu keeps on going and it prevails as compared to the seasonal Flu from which the importance to be watchful and vigilant.

**Material and Methods:** It is a retrospective study based on 95 local patients to be consulted in emergency (at the casualty department) for the flu syndromes over a period of 2 months from 16.02.2011 to 22.04.2011, at the duty unit of EL KETTAR HOSPITAL (Infectious disease hospital).

Before having any antiviral treatment, the 95 patients were given a nasal pharynx swabbing out.

The confirmation of the disease was proved by the detection of the virus according to the rRT-PCR method (primer) at the PASTEUR INSTITUTE of ALGIERS.ALGERIA.

**Results:** On the 95 patients, 42 were positive in favor of the 2009 pandemic A H1N1 flu, that is to say 44.2% and two cases of flu type B (2%). However, we notice a female predominance: 30 women (71.4%) and 12 men (28.6%) sex ratio: 0.4. The average age is 32 years old. The fever was noticed in 34 cases (80.9%), the cough in 29 cases (78.5%), the aching syndrome in 29 cases (69%), asthenia in 25 cases (59.5%), stomach troubles (digestive troubles) in 15 cases (35.7%) and dyspnea in 13 cases (30.95%).

On the therapeutic side, all the patients were given an antiviral treatment based on Oseltamivir.

Three patients were admitted to hospital and put in isolation (7.14%). A patient with VIH and a pregnant woman with her husband.

The hospitalization was concerned with three patients in isolation (7.14%). A patient with VIH and a pregnant woman with her husband.

The evolution was satisfactory for 41 (97%) with a death (pregnancy) caused to breathing distress (respiratory distress).

**Conclusion:** The 2009 A H1N1 FLU is on decline but the virus keeps on going in small epidemics. This disease is mainly concerned with the young adult and it remains a serious disease even fatal and mortal for pregnant women.

**P 134 High susceptibility for enterovirus infection and excretion features in Tunisian patients with primary humoral and combined immunodeficiencies**

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**Introduction:** Immunodeficient persons may serve as potential reservoir for reintroduction of polioviruses after poliovirus eradication, posing a risk of their further circulation in inadequately immunised persons.

**Methods:** To estimate the susceptibility to enterovirus infection and the frequency of long term poliovirus excretors in Tunisian patients with primary immunodeficiencies (PIDs), an active search for enteroviruses in stools was conducted in 82 patients. Isolated viruses were typed and intratyped by standard molecular techniques and poliovirus isolates were sequenced in the whole VP1 gene.

**Results:** Polioviruses were detected in 6 patients among which 5 rapidly stopped excretion; one patient excreted a Polio1 isolate for several months and stopped excretion 134 days after the beginning of the study. Non polio enteroviruses were detected also in 6 patients, 4 of them excreted the same strain for long periods over than 6 months. The rate of enteroviruses infections among the patients (13.4% of the PIDs patients and 20.7% of those with IgG defect) largely exceeds the rates generally found in Tunisia in supposed immunocompetent individuals. Interestingly, patients with combined immunodeficiencies are at a higher risk for enteroviruses infection than those with exclusive B cell defect, the only long-term poliovirus excretor patient had a combined immunodeficiency due to a defect of MHC Class II antigens expression. This combined immunodeficiency is also diagnosed in a majority 54% of the enterovirus positive patients. The study results also suggest that substitutive immunoglobulin therapy may play a role in limiting the evolution to a long-term poliovirus excretion but not for enterovirus infection as well as long-term non polio enterovirus excretion.

**Conclusion:** This report joins others showing that most of patients with PIDs have the ability to stop poliovirus excretion within a limited period after infection. However, the high susceptibility of these patients to enterovirus infection reinforces the needs in an enhanced surveillance of these patients until the use of OPV is stopped.

**P 135 Molecular detection of enteric viruses in children with acute gastroenteritis in Casablanca, Morocco**

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Paediatric gastroenteritis is a one of the most common diseases children and continues to be a leading cause of morbidity and mortality worldwide. Enteric viruses [rotavirus (RV), adenovirus (AdV), norovirus (NoV), astrovirus (AstV)] are the most important etiologic agents. In Morocco, and in our knowledge, no reports have been published on the epidemiology of the above mentioned enteric viruses. The aim of our study was to assess the prevalence and types of enteric virus infections in children aged < 5 years and hospitalized for gastroenteritis. During 2010 and 2011, 104 diarrheal stool specimens were obtained and tested by polymerase chain reaction genotyping and nucleotide sequencing targeting different regions of virus genome : RV (VP4-VP7), AdV (Hexon), EVs (VP1), NoV and AstV (ORF2). At least one viral agent was detected in 43/104 (41.3%) of the specimens. Rotavirus was the most frequent virus identified in 29 out of 104 samples (27,9%), adenovirus in 10 (9,6 %), norovirus in 5 (4,8 %), astrovirus in 4 (3,8 %) and enterovirus in 4 (3,8 %) samples. Rotavirus and adenovirus were characterized by sequencing analysis. These sequences are deposited in GenBank (accession number HM641816-20 and HQ228549-58). This is the first molecular screening for the circulation of RV, AdV, EVs, NoV and AstV in Morocco. Our data suggest an evident circulation of viruses involved in gastroenteritis with a higher prevalence of rotavirus. After introduction of rotavirus vaccines in Morocco (october 2010), the surveillance of rotavirus becomes very important to monitor the emergence and spread of novel rotavirus strains.

**P 136 Epidemiology and clinical features of rotavirus gastroenteritis in hospitalized Tunisian children: a multicenter prospective survey during a 2-year period**

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**Introduction:** Rotavirus (RV) is the leading cause of acute gastroenteritis (AGE) requiring hospitalization in young children. Data on the burden of RV gastroenteritis are needed to guide recommendations for rotavirus vaccine use. This study was undertaken to assess the epidemiology and clinical features of community-acquired RV disease among Tunisian children.

**Methods:** From January 2010 to December 2011, 523 children <5 years of age, who had AGE and were admitted to 11 sentinel hospitals in different regions of Tunisia, were prospectively enrolled in this surveillance study. Stool specimens were systematically tested for the presence of RV using enzyme-linked immunosorbent assay.

**Results:** Overall, 158 children (30.2%) tested positive for RV. This infection was most common among infants aged <2 years (94%). RV gastroenteritis was detected year-round at all 11 sites but was most prevalent in winter (54.2%). Vomiting, fever and dehydration were observed in 77.5%, 69.7% and 58.3% respectively. Respiratory and neurological disorders occurred in 46.8% and 26.1% of cases. The mean length of hospital stay for RV gastroenteritis was 5.4±3.6 days.

**Conclusion:** RV was responsible for nearly 1/3 of all hospitalizations for diarrhea among young children at these sentinel sites. These data will help inform a decision on the introduction of RV vaccine in Tunisia. Continued surveillance in Tunisia will be important to monitor changes in the epidemiology of RV disease and the impact of vaccination after introduction.

**P 137 Search for JC virus (JCV) in colorectal cancer in Tunisian patients**

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Colorectal cancer (CRC) is one of the most common malignancies throughout the world. Several risk factors, both genetic and environmental, have been linked with colorectal carcinogenesis. Recent reports suggested an association of some viruses, especially JCV and human papilloma virus (HPV) with CRC. In the present study, we looked for the presence of JCV DNA and T-Ag expression in fresh colorectal tumor biopsies and in paired adjacent normal mucosa collected from forty seven Tunisian patients. DNA was extracted from fresh tissues using the Invitrogen Purelink Genomic DNA mini Kit. Two PCR methods were used to amplify a



region of the T gene: a simple PCR with the JCTs/JCTas primer pair specifying a 154 bp sequence, and a nested PCR using JCTs/JCTas as external and the pair 4129/4209 specifying a 98 bp sequence, as internal primers. T-Ag expression was determined by immunohistochemical staining using a mouse monoclonal antibody (clone PAb416) directed against SV40 T-Ag that cross reacts with JCV T-Ag. PCR data indicated that 10 of 47 (22%) CRC tumors were positive for JCV DNA whereas all paired adjacent normal mucosa biopsies were negative. On the other hand, immunohistochemical staining showed nuclear T-Ag expression in all ten JCV DNA- positive samples and in 3 additional tumor samples which appeared DNA-negative by PCR. In conclusion, our data are in line with an association of JCV with at least a subpopulation of colorectal tumors.

**P 138 Parvoviral myocarditis in a four-year-old girl.**

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**Introduction:** Infection with Parvovirus B19 (PVB19) is very common in children and causes typically mild illness. Recently, several data indicate that PVB19 may induce myocarditis.

We report, in this paper, the case of a 4-year-old girl to illustrate the spectrum of clinical features, diagnosis approach and treatment of parvoviral myocarditis.

**Case report:** A previously healthy 4-year-old girl was admitted in pediatric ward of the Sahloul university hospital. She complained from arthralgias and abdominal pain.

Physical examination showed fever, papulo-erythematous eruption, tachycardia dyspnea and crackles.

Biological tests came out with hyperleucocytosis, anemia, cytolysis, high level of C-reactive protein and increased erythrocyte sedimentation rate. Blood and cerebrospinal fluid (CSF) cultures were negative.

Chest X-ray revealed cardiomegaly and echocardiography showed left ventricular dysfunction. The ejection fraction of the left ventricle was estimated to 35%. These data led to the diagnosis of myocarditis.

Serological tests for measles, rubella, CMV, EBV, chlamydia pneumoniae, mycoplasma pneumoniae and rickettsiosis were negative.

The first serological test for PVB19 reported the presence of IgM and the absence of IgG. IgG seroconversion was detected two weeks later on a second specimen, suggesting a PVB19 primary infection.

Treatment with furosemide, Antagonists of converting enzyme and veinoglobulins led to satisfactory clinical

improvement and regression of systemic inflammation. Ten days later, echocardiography showed complete recovery of cardiac dysfunction.

**Conclusion:** The case presented here emphasises the importance of viral myocarditis diagnosis. Therefore, the challenge is to determine relation between PVB19 infection and clinical myocarditis. To improve the diagnosis, additional virological evaluation is required.

**P 139 Epidemiologic, clinical and bacteriological characteristics of tuberculosis in the region of Sousse**

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**Introduction:** Tuberculosis (TB) remains a major global public health problem. However, it has large variations in the expression of the disease and in its spread in the general population. We describe the situation of TB in the region of Sousse, with its different clinical, epidemiologic and bacteriological characteristics.

**Materials and methods:** We conducted a retrospective study during 4 years (from 2006 to 2009) concerning all TB cases in the region of Sousse.

**Results:** The total of TB cases is 494. Incidences were respectively 20.7, 20.6, 24.7 and 22.4. Mean age was 39.7, sex ratio was 1.4. Close contact was found in 29.7%. The mean delay for TB diagnosis was 45 days. Symptoms were predominated by cough and fever in pulmonary TB (PTB). HIV infection was noted in only 2 patients with extrapulmonary TB (EPTB). TB was 233 times PTB and 261 times EPTB. Bacteriology confirmed the diagnosis in 207 cases. Multidrug resistance (MDR) was observed 7 times. Mortality attributed to TB was 0.2%.

**Conclusion:** TB remains endemic in our region. TB location is primarily lung and lymph nodes. TB is not related to HIV infection. MDR and mortality attributed to TB are rare in our region.

**P 140 Pulmonary tuberculosis in prisoner population**

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Pulmonary tuberculosis is frequent in prisoners. Tuberculosis currently represents a serious problem in prison populations.

The aim is to study the particularity of confirmed pulmonary tuberculosis in inmates or in persons with history of incarceration. We retrospectively reviewed

clinical data of patients, with confirmed pulmonary tuberculosis hospitalized in our department during four years (January 2007- January 2010). The mean age of the 16 patients reported in this study was 35 years (21-70 years), 87,5% among them were young. Fourteen were smokers (87,5%), 10 were ethylic (62,5%), and 2 were drug addicts (12,5%). Diabetes was found in 5 cases (31,25%), B and C hepatitis virus infection was positive in 2 cases (12,5%), all patients were HIV –negative. The median BMI was 20.63 kg/m<sup>2</sup>, 30% of them were under nutrition (BMI  $\leq$  18,5 Kg/m<sup>2</sup>). Chest radiography showed a bilateral lesions in 6 cases (37,5%). Cavity was present in 44% of cases. Severe anemia (Hb  $\leq$  10g/gl) was noted in 37% cases. The smear negativity was on average 34 days. Side effects was observed in 6 patients (37,5%) requiring, in 2 patients, a change of treatment. The duration of treatment was 6,5 months. The outcome at the end of treatment was favorable in 14 cases (87%). Two patients died in an array of acute respiratory failure. In conclusion: the prevalence of pulmonary tuberculosis in prisoner population is more frequent provides an ideal opportunity to focus public health efforts concerning tuberculosis control in these subjects, who are otherwise often difficult to reach in the community, thus ultimately providing benefits for the entire society.

**P 141 Extended pulmonary tuberculosis: impact and outcome**

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Despite efficiency of tuberculosis (tb) treatment and decrease of pulmonary (P) tb incidence in our country, we still observe many cases of extended (E) forms.

To describe clinical features, risk factors and outcome of Eptb, we conducted retrospective comparative study including 100 male patients hospitalized for Ptb. Patients were divided into two groups: Group (Gr) 1: 50 men with Eptb defined as chest x ray opacities interesting 2 lobes or more. Gr2: 50 men with limited Ptb (less than 1 lobe). Ptb was confirmed in all cases by sputum culture. Clinical presentation, biological abnormalities and outcome were evaluated.

Comparing Gr1 to Gr2, diabetes was more frequent (20% vs 6%;  $p = 0.037$ ). Night sweats (74% vs 48%;  $p=0.008$ ), asthenia (88% vs 56%;  $p<0.001$ ), anorexia (86% vs 50%;  $p<0.001$ ), weight loss (98% vs 64%;  $p=0.001$ ) and dyspnea (20% vs 8%;  $p=0.037$ ) were more reported. Excavated opacities were less common (42% vs 62%;  $p=0.045$ ). Leukocytosis (42% vs 24%;  $p = 0.05$ ), anemia (88% vs 44%;  $p <0.001$ ) and thrombocytosis (36% vs 16%;  $p = 0.023$ ) were more frequent. C reactive protein (92,95 vs 67,46;  $p = 0.031$ ) was higher. Hyponatremia (44% vs 12%;  $p=0.001$ ) and

liver function disturbance tests (38% vs 10%;  $p = 0.001$ ) were more observed. The negativity of sputum bacilli was later (45.96 days vs 28.41 days;  $p=0.012$ ), and the extension of the intensive phase of treatment was more frequent (50% vs 28%;  $p=0.024$ ). Radiological sequelae were more frequent (74% vs 50%;  $p = 0.02$ ). G1 had unfavorable evolution in 62% of cases against 40% in Gr1 ( $p=0.028$ ).

In conclusion our results show that EPTb is associated to frequent diabetes, marked symptoms, important biological disturbance and unfavorable evolution.

**P 142 A case of liliary tuberculosis**

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Miliary and extrapulmonary tuberculosis with lymph node, bone, muscle and lytic lesion of lumbar spine in a non HIV young male. A 22 year old young male from Sudan presented to the emergency department complaining of back pain for three months, non-responsive to pain killers. Five days earlier he was examined for a painful swelling in his right abdominal region and a muscle abscess was drained. He denies any cough, fever or weight loss. He also has pain in his left jaw and difficulty chewing for the past two days. He lives in Greece for 3 years. His past medical history is free for chronic disease. On physical examination he appeared to be ill, in pain. He was found to have low grade fever (37.8 °c) and mild tachycardia. His breathing sounds were normal. The site of the surgical incision is about 3cm above the right upper iliac crest, with pussy discharge. He had Mild hepatosplenomegaly. Mild tenderness is noted with pressure on the spine at the level of T12-O1. Edema and tenderness are also noted at the left temporomandibular joint, with decreased range of motion. Chest X-Ray revealed bilateral infiltrates. An ultrasound of the abdomen revealed an enlarged spleen with multiple low density lesions. A low density mass of about 3cm is also seen at the splenic hilum. His laboratory tests were unremarkable. His HIV and hepatitis tests returned negative. A total body CT scan showed bilateral pulmonary infiltrates, mediastinal lymph node enlargement, lytic lesion of the T1 thoracic spine and a hypo-dense lesion of the psoas muscle.

Pus and gastric fluid smear and culture were positive for acid-fast bacilli. The diagnosis of military tuberculosis was confirmed and a quadruple treatment was initiated. In Europe, tuberculosis has emerged as an important public health problem, with increasing morbidity and mortality, mainly as a result of cases among immigrants from high prevalence countries. Surveillance and preventive strategies of screening, diagnosis, therapy and control of tuberculosis among immigrants is important to avoid further spread of the disease.

**P 143 Effect of tobacco pulmonary tuberculosis**

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**Introduction:** Tobacco increases the risk of pulmonary infection, especially tuberculosis.

**Objective:** We try by this study to analyze this action.

**Patients and methods:** It's a comparative study between two groups of patients hospitalized in our department between January 2008 and June 2010.

**Results:** The first group was made of 37 smokers patients hospitalized because of confirmed pulmonary tuberculosis. The second group consists of 37 non smokers patients and also hospitalized because of confirmed pulmonary tuberculosis. Delay of diagnosis was shorter in the group of smokers (42 days versus 78 days). Cough and dyspnea was more found at the smoker's (86% versus 82%). The biological investigations showed a high level of white blood cells with predominance of neutrophil cells especially in smokers (20 versus 10) and smokers were more likely to be smear-positive (21 versus 17). Chest x ray showed essentially nodules in both groups. These nodules were bilateral in the group of smokers (22 versus 14). Evolution after antituberculosis treatment was favorable for all patients. The duration of the treatment was longer at the smokers (7 months versus 6, 5 months). The complications as the lung fibrosis (2 versus 1) were more among Smokers than non-smokers

**Conclusion:** The Smoking was not associated with delay in the diagnosis and treatment of tuberculosis.

**P 144 Tuberculosis of the chest wall: 8 cases**

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**Introduction:** The thoracic wall is an uncommon localization of tuberculosis. Its frequency is estimated between 1 and 5 % of osteoarticular tuberculosis. This makes the positive diagnosis even more difficult.

**Methods:** 8 cases of thoracic wall tuberculosis listed between 1990 and 2011 in the department of inner medicine of the Military Hospital of Tunis, Tunisia. The diagnosis of tuberculosis was retained on presumptive, bacteriological or histological arguments.

**Results:** 6 women and 2 men, 44 years on average. 2 diabetic and 6 immunocompetent patients hospitalized during an average duration of 67 days. The diagnosis,

suspected on arguments of imaging, was consolidated by bacteriological evidences in 4 cases and histological proofs in 4 ones. Clavicular localization was noted in one case. Both costal and sternal localizations were found in two cases each. 5 patients had dorsal spondylodiscitis. Fever was noticed in two cases of disseminated tuberculosis. No patient had sweats. There was biological inflammatory syndrome only in patients having multifocal tuberculosis. Total duration of treatment varied from 10 to 30 months and was not specified in one case because of several interruptions. It was nil in the sixth case where diagnosis of tuberculosis was made post-mortem.

**Conclusion:** Tuberculosis is endemic in our country. Thoracic wall localization is a big simulator, frequently confused with neoplastic disease. In spite of its rarity, it must be suspected in each tumefaction of the chest wall and each spondylodiscitis especially in dorsal localizations.

**P 145 Breast tuberculosis: About 5 cases**

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**Introduction:** The mammal location is exceptional for tuberculosis and it can sometimes clinically mimic breast cancer.

**Materials and methods:** We collected 5 observations of breast tuberculosis at the department of Gynecology and Obstetrics A - Charles Nicolle Hospital Tunis over a 10 years period from the 1<sup>st</sup>/01/2000 to the 31/12/2009.

**Results:** The average age of our five patients was 25 years ranging from 14 to 45 years. In 2 cases, mammary tuberculosis was secondary to a cervical lymph node localization of the infection. For the other three, the diagnosis was recovered by histological examination after excision of a clinically suspicious breast lump. In all patients, the outcome was favorable after 12 months of poly anti tuberculosis therapy.

**Conclusion:** The breast localization of tuberculosis is rare and represents only 1/4000 of all surgical breast diseases. It mainly affects women of childbearing age from low socioeconomic level. Multiparity and breastfeeding are two risk factors. The clinical presentation is variable and can mimic a breast cancer. Diagnosis is based on pathological examination and isolation of Mycobacterium tuberculosis (BK). The treatment is based on anti-tuberculosis polychemotherapy.



**P 146 Two cases of tuberculous pericarditis in patients coming from developing countries**

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**Background:** Tuberculous pericarditis is a rare cause of pericarditis in Europe. It is most commonly caused by extension from a contiguous focus of infection, usually mediastinal or hilar nodes, but also the lung, spine or sternum or via millitary spread. Tuberculosis is one of the most common infectious diseases and among the main causes of mortality in the developing countries. The purpose of the present study was to describe two cases of tuberculous pericarditis in patients of African origin.

**Description:** A twenty-six-years old male patient from Ethiopia came to the emergency department due to fever, dyspnea and cough that started four days ago. On clinical examination, he had a palpable cervical lymph node. Thoracic X-ray showed an enlarged cardiac silhouette, while cardiac ultrasound revealed the presence of a large pericardial effusion. As pericardial effusion continued to increase despite NSAID treatment, isoniazid, rifampicin and prednisone were administered to the patient on the basis of a strongly positive PPD skin test. Ziehl-Nielsen and culture for *Mycobacterium tuberculosis* obtained from the lymph node biopsy was positive.

The second patient was a twenty-two-year old male from Somalia that visited our hospital due to fever and cough that started seven days ago. On clinical examination, the patient had tachycardia, tachypnea and cardiac friction. Cardiac ultrasound revealed a moderate pericardial effusion. PCR and culture of gastric fluid were positive for *Mycobacterium tuberculosis*.

Both patients received therapy for extrapulmonary tuberculosis and prednisone with clinical improvement and resolution of pericardial effusion.

**Conclusion:** As up to 25% of cases of tuberculous pericarditis can present with cardiac tamponade, high clinical suspicion index is necessary, especially for patients coming from developing countries. Prompt treatment for extrapulmonary tuberculosis together with prednisone usually results in good clinical response.

**P 147 Extrapulmonary Tuberculosis in children: clinical and therapeutic study of 12 cases**

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**Introduction:** The term Extrapulmonary tuberculosis

has been used to describe isolated occurrence of tuberculosis at body sites other than the lung. Extrapulmonary tuberculosis can occur in isolation or along with a pulmonary focus as in the case of patients with disseminated tuberculosis.

**Patients and methods:** A retrospective study was carried out from 2005 to 2011 including all cases of extrapulmonary tuberculosis in children.

**Résultats:** During this period, 12 cases of extrapulmonary tuberculosis were recorded. The mean age was 8,5 years old (extreme: 3-14 years old).

The diagnosis was confirmed by histopathological examinations in 11 cases. In one case, the radio-clinical context and association with a positive tuberculosis skin test allowed to establish the diagnosis.

Extrapulmonary tuberculosis were ganglial in 9 cases, peritoneal in 1 case, renal in 1 case and intestinal in 1 case. The evolution was favorable with prolonged antituberculosis therapy in all cases.

**Conclusion:** The diagnosis of extrapulmonary tuberculosis is challenging since conventional techniques have limitations. Early diagnosis tuberculosis is important in improving the prognosis.

**P 148 Tuberculous peritonitis: Presenting features, diagnostic strategies and treatment**

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**Introduction:** The peritoneum is one of the most common extrapulmonary sites of tuberculous infection. It represent 0.1 to 4 % of all localizations of tuberculosis disease. Peritoneal tuberculosis remains a significant problem in parts of the world where tuberculosis is prevalent.

**Objectives:** The purpose of our study is to describe the clinical, therapeutic and evolutive specifications of peritoneal tuberculosis.

**Materials and methods:** Retrospective study of patients with peritoneal tuberculosis collected in the "C" department of obstetrics and gynecology, in the maternity and neonatology center of Tunis over a period of seven years (2004-2011).

**Results:** 13 cases of peritoneal tuberculosis were included. The mean age was 36 years (range 19 to 75 years). The clinical table was dominated by ascites (80 %). The ascites fluid was exudative type in 92% of cases. Definitive diagnosis was based on laparoscopy with peritoneal biopsy in most cases. Caseo-follicular lesions were present in 59 % of cases. Extra peritoneal localizations were noted in 60 % of cases dominated by pulmonary attacks. Patients received TB treatment ( The first-line antituberculous drugs (isoniazid, rifampicin, ethambutol and pyrazinamide) for an average of 9 months with favorable evolution in 90 % of cases.

**Conclusion:** Peritoneal tuberculosis is a public health problem in Tunisia despite TB control program. It predominates in young women. Its diagnosis is based on the results of peritoneal biopsy performed at laparoscopy. Its evolution is usually favorable on tuberculosis treatment.

**P 149 Genital tuberculosis in women**

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**Background-** Tuberculosis remains a major health problem in many developing countries; genital location is still responsible for a significant proportion of female infertility and can touch all genital structures.

The aim of this study is to determine epidemiological, clinical, histological diagnosis, therapeutic and evolving characteristics of genital tuberculosis in Tunisian women.

**Patients and methods-** A ten years retrospective study was carried out in the Infectious Diseases Department at Rabta University Hospital, Tunis, (January 2001-December 2010).

**Results-** We included 35 cases of genital tuberculosis in women. The mean age was 42.2 years (18-76 years). A family or a personal history of tuberculosis was found in 8 cases (22.8%). General signs were notified in 51.4% of patients. The most frequent symptoms were pelvic pain (40%), abdominal pain (28.6%) and metrorrhagia (17.2%). Eight women had secondary amenorrhea and sterility (22.8%). The Mantoux test performed in 26 cases, was positive in 69.2%. Laparoscopy was carried out in 26 women (74.3%) searching for an ovarian cancer. The various findings on laparoscopy were military tubercles in 16 cases (61.5%), adhesions in 10 cases (38.5%), ascitis in 7 cases (26.9%) and ovarian mass in 5 cases (19.2%). GTB was confirmed by histopathology in 91.5%. Associated locations to GTB were noted in 62.8%; they were peritoneal (n=21), nodes (n=3), pulmonary (n=3) and urinary (n=2). All patients received anti-tubercular treatment for an average of 11 months. The outcome was favorable in all cases.

**Conclusion-** Genital tuberculosis is often indolent. Laparoscopy is an essential tool to assess diagnosis. Negative endometrial biopsy does not rule out it.

**P 150 Female genital tuberculosis: apropos of six cases**

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**Introduction:** Tuberculosis, long considered as a disease of the past, yet this disease. Achieving genital is

exceptional.

The rarity of this condition and the diagnostic difficulties justify the interest of our work.

**Materiel and methods:** A retrospective study of six observations collected at the service of Obstetrics and Gynecology of Monastir over 8 years.

**Results:** The average age of our patients was 36 years (22-56 years). The circumstances of discovery were: primary infertility (68%), cycle disorders (22%), pelvic pain and chance discovery. Hysterosalpingography was the first supplementary examination performed in 5 patients. The uterine synechia was the anomaly most frequente. La research in vaginal secretions BK performed in 4 patients was negative in all cases. Histology confirmed a diagnosis in 5 cases. Treatment consisted of a combination anti-tuberculeuse. Une one patient received surgical treatment. The outcome was favorable in 66% of cases without design.

**Conclusion:** Genital tuberculosis, thanks to advances in treatment, no longer the dreaded disease, but infertility is a sequel almost inevitable

**P 151 Lymph node tuberculosis: Analysis of 100 cases**

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**Introduction:** Tuberculosis of the lymph node is the most common form of extrapulmonary tuberculosis (30-52%).

**Method:** We conducted a retrospective study of all patients with superficial lymph node tuberculosis hospitalized in the infectious diseases and ENT departments between 1992 and 2010. We reviewed the epidemiological, clinical, histological and therapeutic data of all patients. Only patients aged over 15 years and correctly followed-up for a minimal period of 7 months were included in this study.

**Results:** We diagnosed 187 patients with tuberculosis lymphadenitis out of 332 patients with tuberculosis (56.3%). Only 100 patients were included in our study. Their mean age was 35 years (15-85 year). Sixty-four were females. All patients were non HIV-infected. The most common complaint was enlarged lymph node in 94% of cases. Constitutional symptoms were present in 53% of cases. Thirty-six diagnosed patients had a highly positive skin test to tuberculin. The site of affected lymph nodes was cervical in 84 cases. Deep lymph nodes were involved in 6 cases. Nine patients had another concomitant tuberculosis infection. It was pulmonary tuberculosis in 3 cases. All patients were histologically diagnosed. Forty-two underwent fine

needle aspiration. It was not indicative in 4 cases (9.5%) and confirmed the diagnosis in 31 cases (73.8%). Lymph node biopsy was performed in 69 cases. It confirmed the diagnosis in all cases. The most major histological feature was granuloma and caseation (87%). Ziehl-Neelsen stains and culture were respectively positive in only 3 and 1 cases. All patients received chemotherapy for a mean duration of 9.7 months. Thirty-nine patients were lost to follow-up at 7 months of treatment. At the end of treatment apparent improvement was observed in 96 cases and 2 patients relapsed. Paradoxical response occurred in 10 cases.

**Conclusion:** Tuberculosis remains the first diagnosis in enlarged lymph node in endemic area. Microbiology researches have to be improved especially when combined with fine needle aspiration.

**P 152 Preoperative fine needle-aspiration cytology in the management of lymph node tuberculosis**

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**Introduction:** Chronic lymphadenitis are a frequent motif for sickcalls. They present specially an etiologic problem. The use of fine-needle aspiration in the investigation of chronic lymphadenitis presents an important add-on. The aim of our work is to evaluate the interest of fine-needle aspiration cytology on the node tuberculosis diagnosis by comparing its results to histological diagnosis

**Materials and methods:** Our work study a serie of 147 patients who underwent cervicotomy in our service for a chronic lymphadenitis between 2005 and 2010, a preoperative fine-needle aspiration cytology was available in all cases and compared with histological diagnosis in a retrospective review.

**Results:** Fine needle-needle aspiration cytology of lymph nodes showed granulomatous reaction with caseation reaction 51 cases, the material was acellular in 39 cases, predominantly composed of lymphocytes in 57 cases. The diagnosis of tuberculosis was confirmed through histological assesment in 121 cases. The specificity was 93%, the sensitivity was 53.5%, and the diagnostic accuracy was 95%.

**Conclusion:** Fine-needle aspiration cytology is a simple diagnostic tool which provides accurate informations in the diagnosis of lymph node tuberculosis with a specificity of 93%. Therefore this exam has no sense only when it's positive. The accuracy of the method partly depends on the operator skill.

**P 153 Side effects due to antituberculosis drugs among 100 patients**

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**Objective:** Side effects of the most commonly used primary antituberculosis drugs may be mild as well as fatal. The aim of this study was to evaluate the frequency and severity of the side effects developing by antituberculosis drugs.

**Patients and methods:** Records of 100 patients with established tuberculosis lymphadenitis who initially received antituberculous therapy were evaluated retrospectively. The major side effects were analyzed.

**Results:** We diagnosed 100 patients with tuberculosis lymphadenitis. Their mean age was 35 years and the male to female ratio was 0.5. These patients received Isoniazid (100%), Rifampicin (95%), Pyrazinamide (97%), Ethambutol (91%), Streptomycin (15%), Ethionamid (1%) and Amikacin (1%). The mean duration of treatment was 9.7 months (7-19 months). Among 100 patients treated, twenty-eight patients experienced, one or more, side effect. The incidence of all major adverse effect was 34: hyperuricemia 50% (17 cases), the median time to onset was 35.2 days. It was symptomatic in two cases. Hyperuricemia had led to stopping Pyrazinamide in one case, reduction of the doses in 5 cases and association of Allopurinol in one case. The frequency of hepatotoxicity was 20.6% (7 cases), the median time to onset was 4.6 months and the molecules involved were Rifampicin in 2 cases, Isoniazid in four cases and Ethionamid in one case. This toxicity led's decision to stopping the molecule involved in 3 cases and to reduce the dose in 4 cases. The third side effect was allergic reaction which represented 29.4% (10 cases), the median time to onset was 22.5 days and the molecules involved were Isoniazid in 2 cases and Rifampicin in 5 cases. In the three other cases, it was a transient allergic reaction occurred in the first two days of treatment and had not led to therapeutic change.

**Conclusion:** Patients receiving antituberculous drugs must be followed-up regularly to monitoring treatment side effects.

**P 154 Pituitary tuberculosis : two cases report**

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Through two cases of tuberculosis of the sellar region, the authors report the rarity of pituitary tuberculoma, it's physiopathology, clinical characteristics, hormonal and radiological findings as well as its management and its evolution.

The first case was about a 42 year-old woman who



presented polyuria polydipsia syndrome, amenorrhea and galactorrhea. Endocrine investigations showed cranial diabetes insipidus, elevated serum prolactin levels and cortisol failure.

Magnetic resonance imaging scans (MRI) revealed a nodular thickening of the infundibulum associated with an enlarged pituitary gland and loss of posterior pituitary T1W hyperintensity signal.

Etiologic inquiry has led to the diagnosis of tuberculosis after eliminating the various causes of infundibulum thickening before the history of erythema nodosum, the positivity of tuberculin skin test and the presence of Koch bacillus in the bronchial fluid after culture.

The patient was put on antituberculosis (TB) chemotherapy for 18 months associated to an hormonal replacement therapy enabling clinical improvement, disappearance of PUPD normalization of prolactin level and recovery of adrenal function.

Follow-up MRI done 8 months later showed complete regression of the mass, confirming our diagnostic presumption.

The second case concerned a 36-year-old woman, with history of systemic tuberculosis. Hypothalamic pituitary localisation was discovered accidentally on MRI of the brain showing a sellar mass with suprasellar extension.

Endocrinological investigation showed an adrenal and gonadic deficiency associated to a high level of prolactin. The patient was put on TB treatment, for 22 months, and hormone replacement therapy which led to a remarkable clinical improvement and a progressive regression of the tuberculous granuloma in follow up imaging. Although diagnosis of sellar tuberculomas is difficult on clinical and radiological examinations, pituitary tuberculomas should be considered in the differential diagnosis of suprasellar masses, because is potentially curable by TB treatment.

#### **P 155 Is adrenal tuberculosis the first cause of Addison disease?**

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**Introduction:** Thomas Addison reported adrenal tuberculosis (AT) in 1855 for the first time. Addison's disease also refers to chronic primary adrenal insufficiency. Currently, adrenal tuberculosis only accounts for 30% of primary adrenal insufficiency, and idiopathic adrenal atrophy accounts for 60% in the developed countries. We aim to report the prevalence of AT among cases with chronic primary adrenal insufficiency in a Tunisian Department of endocrinology. We aim also to highlight the clinical, biological and imaging features in patients with AT.

**Methods:** Patients were recruited between 1991 and 2010. The diagnosis of chronic primary adrenal

insufficiency was confirmed by a synthetic ACTH intramuscularly test.

**Results:** We examined 29 patients (10 men, 19 women; age range, 14–64 years; mean age, 39 years). All patients exhibited symptoms of lethargy, anorexia, and nausea. Physical examination revealed hyperpigmentation, weight loss, and signs of hypotension. The appropriate laboratory studies showed a depleted adrenal reserve in all patients. Among the 37 cases, three patients had the diagnosis of tuberculosis but only one was confirmed by laboratory examinations (positive for tuberculin test). Two of the three cases had extra-adrenal tuberculosis on the past, such as pulmonary tuberculosis, tuberculosis of lumbar spine. An ACTH stimulation test was performed with a cortisol concentration at 60 minutes: 150 in the first case, in the second: 14.5 and 10 in the third.

All our patients were treated by oral corticosteroid, only one case was treated by anti-tuberculous treatment.

**Discussion:** Since 1855 AT has been considered a major cause of chronic primary adrenal insufficiency, especially in endemic countries of tuberculosis.

In developed countries, about 75 and 80% of cases of AD are caused by autoimmune destruction. TB is the second most common cause. Other causes are rare.

Although Tunisia is an endemic country of tuberculosis our study shows that AT is

Rare and our results join the previous study.

**Conclusion:** Addison's disease or primary adrenocortical failure is a rare condition, most commonly caused in the UK by autoimmune destruction of the adrenal glands.

#### **P 156 Adrenal tuberculosis**

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**Introduction :** Isolated adrenal tuberculosis is rare and often secondary to extra-adrenal tuberculosis. We report a case of primary adrenal tuberculosis revealed by adrenal incidentaloma.

**Case report :** A 68-year-old man, with type 2 diabetes mellitus was hospitalized in the urology's department for hydronephrosis upstream of ureteral stone. An heterogeneous necrotic right adrenal mass, associated to retroperitoneal necrotic nodules were discovered in the abdominal imaging. Clinical and hormonal examinations were normal except for a weight loss. The tuberculin skin test was 17 mm. The BK research in sputum and urine were negative on direct examination and culture. Adrenal magnetic resonance imaging confirmed the presence of a right adrenal mass : 4 x 3,2 x 2,8 cm in hypersignal T1, hypersignal T2 with heterogeneously enhancement and revealed large necrosis area and multiple retroperitoneal centimetric lymphadenopathy. He

had a right adrenalectomy and histopathological study confirmed tuberculosis. This surgery was complicated in the second day by adrenal insufficiency. All investigations looking for primary tuberculous locations were normal. He has been treated with three anti-tuberculosis drugs. The clinical and radiological outcomes were favorable.

**Conclusion :** Our case illustrate the misleading nature of adrenal tuberculosis which is usually secondary to pulmonary or genitourinary ones. Its diagnosis is sometimes difficult leading to adrenalectomy and this's especially in the absence of extra-adrenal locations.

**P 157 Brain tuberculosis: 24 cases**

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**Introduction:** Despite the resurgence of tuberculosis, partly due to HIV infection, central nervous system involvement remains rare, accounting for only 2 to 5% of all tuberculosis forms.

**Patients and methods:** We report 24 cases of patients hospitalized between 2001 and 2010 in the internal medicine department of a military hospital of Tunis.

**Results:** They were 24 patients, 16 women and 8 men (sex ratio=0,5). The average age was 56 years (18-75 years). We have collected six cases of brain tuberculomas, five cases of miliary tuberculosis and 13 cases of neuro meningitidis tuberculosis. All these situations occurred in patients free of HIV infection. Ten patients had a field of immunosuppression at diagnosis (diabetes =6 cases, complaints = 2 cases, chronic renal failure = 2 cases). Headache, fever, consciousness disorders, deficit disorder or cerebellar syndrome were the main symptoms. Tuberculomas were multiple and disseminated in four cases and localized in the brain stem in two cases. The diagnosis was established in three cases on the basis of the pathology results of brain biopsy or the detection of Mycobacterium tuberculosis in the cerebrospinal fluid. Three patients had a positive PCR and the diagnosis was presumptive in the other cases. All patients recovered under antituberculosis treatment that was maintained on an average of 13 months (11 - 16 months). Steroid treatment was associated in five patients and tapered off for four to six weeks. Good clinical, biological and radiological improvement were recorded in 22 patients with a mean decrease in three years. Two cases of death in an array of organ failure was noted. One of them was diabetic and the death happened six weeks after the initiation of antituberculosis treatment.

**Conclusion:** The brain Tuberculosis is a severe infection. Only an early diagnosis and treatment can improve the prognosis. Bacteriological certainty is difficult to obtain but very contributory for both the diagnosis and the prognosis.

**P 158 Ocular tuberculosis: epidemiology and clinical manifestations**

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**Introduction:** Tuberculosis is a chronic systemic granulomatous disease that can manifest with an ocular involvement. The purpose of our study is to analyze epidemiological and clinical features of ocular tuberculosis.

**Patients and method:** We retrospectively reviewed clinical files of 386 patients who attended B department of Hedi Rais Institute of Ophthalmology, between January 2008 and December 2011, with a diagnosis of uveitis. Positive interferon-gamma release assay (IGRAs), Mantoux test higher than 15mm and medical history of tuberculosis were included.

**Observations:** Four patients had presumed or confirmed tuberculosis (1%). Ophthalmological manifestations included bilateral episcleritis, anterior granulomatous uveitis, and panuveitis associated with choroiditis or vasculitis and papillitis. Two patients had concomitant pulmonary infection.

**Conclusion:** Our study showed a low prevalence of ocular tuberculosis with a wide spectrum of manifestations and disparate grades of severity.

**P 159 Tolosa Hunt syndrome presenting as tuberculosis**

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**Background:** Tolosa-Hunt Syndrome (THS) presents as a painful ophthalmoplegia in attacks or bouts, usually lasting 3-5 days and responding miraculously to corticosteroids administration. In THS, the ophthalmoplegia is attributed to a low-grade inflammatory process in the cavernous sinus. Several other causes imitating THS have been described

We report the case of a young woman who presented with painful ophtalmoplegia which was caused by THS and tuberculosis

**Case report** A 38-year-old woman presented with hyperacute headache. She was admitted to our hospital. The headache was followed by nausea, vomiting and photophobia. There were no previous attacks of headache. Ophthalmologic exploration revealed a limitation of the right eye abduction and the patient was diagnosed with VIth right nerve paresis. Lumbar puncture yielding clear cerebrospinal fluid with an opening pressure of 29. Blood test revealed no abnormalities, normal hemogram, thyroid hormones, microsomal antibodies, antithyroglobulin antibodies. Magnetic resonance imaging (MRI) detected a lesion in

the left parcellar region of the cavernous sinus (2X 1 cm) T1 and T2-weighted images showed a lesion with an intermediate signal intensity with moderate enhancement and some focal hypertense areas. With THS still being possible and to start prednisolone we realise intradermo reaction to tuberculin which is more than 15mm. We start anti tuberculosis treatment. The headache and nausea disappeared in a few days. Vision, ophtalmoplegia recovered completely. Six months later, the patient presented another time with headache, and facial nerve palsies, a repeated MRI scan of the brain showed the same lesion. We decided to start prednisolone 80 mg daily. One month later the patient had no symptoms and neurological examination revealed no abnormalities. Repeat TDM was normal.

**Conclusion:** Our patient met criteria for THS and also tuberculosis infection. But the presence of same lesion before antituberculosis treatment and the lesion seen on the MRI was considered to be compatible with the diagnosis of THS and the patient improved after a few days of therapy with prednisolone. The diagnosis of THS seemed most probable.

**P 160 Non-axial bone and joint tuberculosis**

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**Background-** Bone and joint tuberculosis (BJT) is encountered in 2 to 5% of all tuberculosis and in 11 to 15% of extra-pulmonary tuberculosis. The most frequent forms are the axial locations, non-axial one remains rare (1 to 5%).

The aim of this study is to determine epidemiological, clinical, positive diagnosis, therapeutic and outcome features of non-axial BJT.

**Patients and methods-** A seventeen years retrospective study was carried out in the Infectious Diseases Department at Rabta University Hospital, Tunis, (January 1995- December 2011).

**Results-** We included 20 cases of non-axial BJT. They were 7 men and 13 women. The mean age was 52.1 years (19- 87). A family or a personal history of tuberculosis was found in 5 cases (25%). We noted 22 locations which are: shoulder (n=3), phalanx (n=3), metacarpus (n=3), ulna (n=3), hip (n=2), tibia (n=2), rib (n=2), sterno-clavicular joint (n=2), knee (n=1) and trapezium (n=1). Isolated non-axial BJT was identified in 25% of cases. The most frequent associated locations were: skin in 9 cases, lungs in 5 cases and nodes in 5 cases. Spondylodiscitis was associated in only 3 cases. The Mantoux test performed in 16 cases, was positive in 75%. On radiological exam, the most frequent findings were geodes in 7 cases, lyses 2 in cases. Tuberculosis

was confirmed by histopathology in 9 cases (45%) and microbiological study in 3 cases (15%). All patients received anti-tubercular treatment for an average of 16.1 months (6-36). The outcome was favorable in all cases.

**Conclusion-** BJT should be suspected in peripheral joint when bone damage is associated with an abscess or cutaneous fistulas, and/or when no improvement is obtained under nonspecific treatment.

**P 161 Reactivation of tuberculosis during a treatment by pegylated interferon for viral chronic hepatitis B or C: About 4 cases**

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**Introduction:** reactivation of case of tuberculosis during antiviral treatment (pegylated Interferon and Ribavirine) was reported in some cases. The immunosuppression induced by the interferon would be probably at the origin of this reactivation. We bring back the observations of 4 patients who developed tuberculosis during antiviral treatment.

**observations:** 4 patients (3 women and a man) with a mean age of 50 years. three among these patients had viral chronic hepatitis c, and the last viral chronic hepatitis b. the treatment associated pegylated interferon + ribavirin in 3 cases and pegylated interferon only in one case. the evaluation of the virological response at 12 weeks of treatment was good (reduction of more than 2 log of the viral load) among all patients. the average time of occurred of the clinical symptoms of tuberculosis was 3 month. the localization of tuberculosis was pulmonary in 3 patients and ganglionar at 1 patient. the antiviral treatment had be continued in 3 patients and stopped in 1 case. tuberculosis treatment was based on quadritherapy ethambutol and pyrazinamide) during 2 months and bitherapy (isoniazid, rifadine) during 4 months in 3 patients, and a trithérapie without pyrazinamide for one patient who was at the stage of cirrhosis..

**Conclusion:** The reactivation of tuberculosis under interferon is rare. However, there is no recommendation about the continuation or not of antiviral treatment. The other question concerns the necessity of detecting the cases of latent tuberculosis in our country before starting a treatment by interferon.

**P 162 Mendelian susceptibility to mycobacterial diseases (about 3 cases)**

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**Introduction:** Primary immunodeficiencies that cause susceptibility to severe mycobacterial infection due to



weakly pathogenic mycobacteria are genetically and clinically heterogeneous Mendelian disorders.

The present report describes the clinical and genetic heterogeneity of this disorder in 3 Tunisian patients from 3 unrelated families who presented with disseminated BCGitis.

**Methods:** Immunologic studies. The diagnosis of idiopathic BCGitis was established after exclusion of underlying well-characterized immunodeficiencies known to be associated with disseminated mycobacterial infection.

**Case report 1:** Patient AM (female), who was born to consanguineous parents, had received BCG vaccine at birth. At age 3 months, the patient presented with an axillary lymphadenitis that disseminated rapidly. The patient received quadruple-drug antituberculosis therapy (ethambutol, isoniazid, rifampin, and piazolin) for 2 months and had clinical improvement. A defect of IL-12/IFN $\gamma$ , was identified.

**Case report 2:** Patient MS (female) was born to nonconsanguineous parents. The patient was vaccinated at birth with BCG. Clinical symptoms started at age 6 months, with the development of diarrhea, fever, bilateral fistulizing axillary adenitis, and hepatosplenomegaly. Immunologic study had confirmed the lack of expression *IL12R $\beta$* .

**Case report 3:** Patient AD (female), hospitalized at the age of 12 months for generalized seizures with a herpetic meningoencephalitis and a past medical history of having tuberculosis abscess of the left thigh. In this situation, the clinical presentation is different and shows that affected individuals are also vulnerable to some viruses, such as herpes virus -8.

**Conclusion:** Patients with Mendelian susceptibility to mycobacterial disease have severe, recurrent life-threatening infections with otherwise poorly pathogenic mycobacteria and salmonellae. The extreme susceptibility is the result of genetic defects in the interleukin-12/interferon- (IL-12/IFN-) pathway.

**P 163 Bacteriological and molecular diagnosis of Mycobacterium tuberculosis in the Habib Thameur Hospital, Tunisia**

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Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*. Laboratory diagnosis of this disease is mainly based on the identification of the bacterium by direct microscopic examination and bacterial culture methods. In our study we used both bacteriological and molecular techniques for the detection of *Mycobacterium tuberculosis* in a group of

Tunisian patients. Sixty three samples (28 sputum, 28 urine, 4 gastric aspirates, and 3 bronchial washings) were collected from patients with suspected tuberculosis. DNA was extracted using successive thermal shocks and amplified by one tube nested PCR (OTN-PCR) targeting the IS6110 insertion sequence. TB290/TB 856 and TB431/ TB740 were used as external and internal primer pairs, respectively. The obtained results show that the detection of *Mycobacterium tuberculosis* can be performed by OTN-PCR or simple PCR using either the external or the internal primers alone, with similar sensitivities. OTN-PCR, however, had a higher specificity and appeared to be more suitable for confirmation of *Mycobacterium tuberculosis* infection. OTN-PCR showed similar specificity and sensitivity to the culture assay on Lowenstein Jensen medium. The conventional PCR and the One Tube Nested PCR (ONT-PCR) including 4 witnesses collected positive cultures.

**P 164 Assessment of the SD BIO-LINE Ag MPT64 Rapid TB identification tests for the diagnosis of tuberculosis**

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**Introduction:** Tuberculosis (TB) is a global health problem worldwide. Its diagnosis remains complex and slow. Several new technologies are proposed to accelerate and simplify this diagnosis.

**Materials and methods:** In this context, we evaluated an immunochromatographic assay (ICA) (BIO-LINE SD Ag MPT64 TB) for rapid identification of *Mycobacterium tuberculosis* complex (MTC), based on detection of specific MPT64 antigen of MTC. We have tested it on 210 MTC strains, 28 nontuberculous mycobacteria, *M. bovis* BCG strain SSI and 20 organisms other than mycobacteria, isolated from cultures.

**Results:** We concluded that this kit has an excellent specificity (100%) and sensibility (99%) from isolated cultures.

**Conclusion:** The ICA (BIO-LINE SD Ag MPT64 TB) allows an excellent MTC identification from clinical isolates. It is a rapid, simple and inexpensive test. It has a definite contribution in rapid laboratory diagnosis of TB.

**P 165 Diagnosis Of Latent Tuberculosis In Immunosuppressed Patients With inflammatory Bowel Diseases.**

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For a century, Tuberculin skin test (TST) was the unique available means for the diagnosis of latent tuberculosis infection (LTBI) until the recent development of *Mycobacterium tuberculosis* (Mtb) antigen-specific interferon  $\gamma$  releasing assays (IGRA). However, for the reason that both tests are based on cell-mediated immunity, these technics might show shortcomings in patients under immunomodulator (IM) drugs.

Throughout this study, we endeavor (a) to evaluate the concordance between the results of both TST and QuantiFERON®-TB Gold In-Tube (QFT-GIT), and (b) to assess the impact of IM treatment in their performances.

TST by Mantoux method and QFT-GIT were prospectively performed in 75 consecutive IBD patients and 33 healthy individuals. TST was deemed positive at  $\geq 5$ mm for patients under IM and  $\geq 10$ mm for the others. QFT-GIT was performed and interpreted according to manufacturer's instructions. The concordance between the tests' results was estimated by Cohen's kappa ( $\hat{I}$ ) test. The good agreement observed between TST and QFT-GIT in controls ( $\hat{I} = 0,48$ ) contrasts with the poor one in patients ( $\hat{I} = 0,03$ ). More positive results were found by TST than QFT-GIT for both groups: controls [24,2% vs 9,1%] and patients [17,3% vs 12%], respectively. Although QFT-GIT results were unaffected by IM therapy, a poor mitogen response ( $<6$  u/ml) was more frequent in immunosuppressed patients (11,1 % vs 3,3%). Analogously, lesser TST+ were observed in those under IM (13,3% vs 23,3%).

In accordance with previous studies, we found poor agreement between TST and IGRA in our IBD patients. Although IM weakens the immunity strength, QFT-GIT seems to be more accurate for detecting cases of LTBI that would otherwise be missed using solely TST. In a quite vaccinated population, QFT-GIT appears more reliable for excluding a false positive TST. These preliminary results will be ascertained as long as the size of both groups is enlarged.

**P 166 Human tuberculosis caused by *Mycobacterium bovis***

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Bovine tuberculosis is an anthrozoosis since it is a natural infection of cattle. It is conveyed to the humans in unpasteurized milk and sometimes by cough spray. Since the implementation of milk pasteurization, there has been a marked decline in the incidence of human bovine tuberculosis. Nevertheless, according to recent reports, the problem has re-emerged. In this study, we reported 11 cases of human bovine tuberculosis. *Mycobacterium bovis* was isolated from 6 lymph nodes, 3 sputa and 2 abscesses (psoas, paravertebral). Acid fast bacilli identification was positive in 73% of cases. Non-pigmented, small and smooth colonies were isolated on Lowenstein-Jensen medium within 42 to 60 days. The identification was based on biochemical criteria (niacine test-, nitrate reductase-, sensitive to the TCH). All strains were sensitive to isoniazid, rifampicin, streptomycin and ethambutol. The incidence of bovine tuberculosis in Tunisia seems to be underestimated since glycerol-containing Lowenstein -Jensen medium is used for *Mycobacterium bovis* cultivation.

**P 167 Co-infection : mycobacterial pulmonary to *M. kansasii* and active pulmonary tuberculosis**

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Pulmonary infections caused by atypical mycobacteria (AM) are rare and occur mainly in immunocompromised patients. It is very rare in immunocompetent and is seen primarily on a pathological lung. Its association with active pulmonary tuberculosis is exceptional and poses a diagnostic and therapeutic problems.

A 40 years old patient, known asthmatic since childhood, smoker and ethylic. Her asthma was poorly controlled, it has to consult for cough, abundant sputum and haemoptysis in a context of impaired general condition. Physical exam showed a dyspneic patient, pulmonary wheeze in two fields, a BMI 15 and clubbing. Gas blood showed hypoxemia to 44 mm hg, the biology a severe anemia with Hb 7.3 and leukocytosis with lymphocytic predominance. Chest x rays showed multiple nodular and cavitary image predominating in the upper lobe of the two lung fields. The research of AFB in sputum on direct exam was positive with four crosses from the first day. The diagnosis of severe pulmonary tuberculosis that decompensates his asthma was initially retained. Quadruple antitubercular drugs was started. The evolution was marked by a very slight improvement clinically and radiologically with a delay of negative BK in sputum by direct examination until 3 months of treatment. At 4 months, 4 sputum cultures isolated a mycobacterium *kansasii* resistant to INH and streptomycin and 6 cultures isolated a mycobacterium

tuberculosis. HIV and hepatitis serology were negative. So a co-infection pulmonary tuberculosis and atypical mycobacterial was retained. Therefore treatment was according to ATS recommendations with addition of clarithromycin and ciprofloxacin. The subsequent evolution was favorable with disappearance of general symptoms, control of his asthma and obtaining negative cultures at 12 months of treatment.

The diagnosis of AM is particularly difficult among TB patients. its association with active tuberculosis makes it even more difficult. This is causing a considerable delay in diagnosis and therapy. The prognosis is not clear.

**P 168 Tuberculosis drug resistance in Southern Tunisia: A retrospective study over a 10 years period**

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**Introduction:** Mycobacteria drug resistance is a serious problem in the treatment of tuberculosis and a threat to successful control programmes. The aim of this study was to determine the prevalence of tuberculosis drug resistance in Southern Tunisia and to study the epidemiological characteristics of patients with a resistant strain.

**Material and methods:** This is a retrospective study over a period of 10 years (January 2002-December 2011) including 1133 strains. Their identification was based on microscopic, cultural and biochemical criteria. The proportion method on Lowenstein-Jensen was used to study the sensitivity to four anti-tuberculosis drugs: isoniazid (I), rifampicin (R), streptomycin (S) and ethambutol (E).

**Results:** A total of 19 resistant strains was isolated (1.67%): *Mycobacterium tuberculosis* (18 strains) and *Mycobacterium bovis BCG* (1 strain). Fourteen strains were isolated from sputum, two from urine and the three remaining strains from a pus, a lymph node sample and a joint fluid. Ten strains (47%) were resistant to one anti-tuberculosis drug : I = 2 cases, S =6 cases, R = 2 cases. Combined resistance to isoniazid and rifampicin (multidrug resistance MDR-TB) was found to be 0.7% (9/1133 strains). Five MDR-TB strains were isolated from Libyan patients and the rest from Tunisian ones (Gabes).

**Conclusion:** In our study, the rate of MDR-TB is still low. However, more than half of MDR-TB patients was Libyans highlighting the importing-resistant strains risk.

**P 169 Molecular Detection of Isoniazid Resistant *Mycobacterium tuberculosis***

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Correct and rapid diagnosis is essential in the management of drug-resistant tuberculosis. Isoniazid is one of the major antituberculous drugs. The genetic basis of resistance is complex and several genes may be involved.

In this study we aim to characterize the most frequent genetic basis of Isoniazid resistance in *M.tuberculosis* isolated in Tunisia.

During a 3 year period, 66 isoniazid strains were identified by proportion method and line probe assay (Genotype MTBDR plus Hain Lifescience, Nehren, Germany). The molecular assay detects the presence of the most frequent mutations on katG 315 and the positions -16, -15 and -8 in the regulatory region of inhA.

Resistance to isoniazid was frequently associated to Rifampicin resistance (51/66). The *katG* point mutation on codon 315 is the most common molecular mechanism involved. It is found alone or associated to a mutation in the promoter region of the *inhA* gene respectively in 44 and 6 strains. The three *inhA* regulatory mutations detected by the line probe assay were less frequent and were found in 12 isolates. Only 4 strains were not detected by the molecular method.

There are many molecular mechanisms causing Isoniazid resistance, but only some of them have been characterized. Fortunately, the detection of the most frequent mutations in the *katG* and the promoter region of the *inhA* genes can easily predict resistance.

**P 170 Genetic Support of Rifampicin Resistance of *Mycobacterium tuberculosis***

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The emergence of multidrug resistance TB (MDR-TB) is one of the greatest threats to tuberculosis control. Molecular method provide rapid detection of resistance to antibiotic. Resistance to Rifampicin, a major antituberculous drug often associated with MDR-TB, involved mutations located in the 81 pb hot spot region of the *rpoB* gene.

In this study, we aim to characterize the genetic basis of Rifampicin resistance in *M.tuberculosis* isolated in Tunisia.

In our study 64 Rifampicin resistant strains were isolated during a three year period (2009-2011). Among them, 51 were multidrug resistant and 13 mono-resistant to



rifampicin. Resistance was detected by drug susceptibility testing and a line probe assay (Genotype MTBDR plus Hain Lifescience, Nehren, Germany).

The molecular method was not able to detect resistance in 7 strains (11 %) so no mutations were identified in the 81 pb hot spot *rpoB* region. The rifampicin resistance involved mutations occurring only on codon 516, 526 and 531. These 3 codons allowed the molecular detection of 57 rifampicin resistant strains (89%). Mutation on codon 531 of the *rpoB* gene was prevalent. It occurs either alone or combined respectively in 37 strains (57,8%) and 12 strains (18,8%).

Analysis for the molecular basis of the rifampicin resistance shows that a limited number of gene codons can predict rifampicin resistance of *Mycobacterium tuberculosis*. Uncommon mutations are difficult to detect therefore molecular tests can not totally replace culture.

**P 171 Fatal hemophagocytic syndrome associated with hematopoietic organ tuberculosis: A case report**

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Hemophagocytic syndrome (HS) is a non neoplastic generalized histiocytic proliferation leading to phagocytosis of blood cells. Hemophagocytosis may be primitive or secondary to neoplasia, auto-immune diseases or infections. This life-threatening disease is rare and sometimes associated with tuberculosis. Our objective is to raise the importance of HS early diagnosis by presenting a representative case of fatal macrophage activation syndrome associated with tuberculosis of hematopoietic organs. A 59 year-old man with a history of hypertension, type 2 diabetes mellitus and pulmonary tuberculosis treated in 2008, was admitted on January 29, 2012 with prolonged fever, asthenia, sweating, anorexia, body weight loss and productive cough. These symptoms had started 1 month previously. Splenomegaly, jaundice, pancytopenia, elevated liver enzymes and hyperferritinemia were noted after admission. Chest computed tomography revealed multiple mediastinal lymphadenopathy. Myelogram suggested HS. Bone marrow biopsy showed hemophagocytosis and necrotizing granulomatous inflammation. Despite treatment with a broad spectrum antibiotherapy, antituberculous drugs and steroid pulse therapy, the outcome was severe with rapidly progressive multiorgan dysfunction leading to death. HS prognosis is poor, depending on the associated disease, with an overall mortality of 50%. Patients with HS should be rigorously screened for tuberculosis and antituberculous therapy should be initiated early to improve prognosis.

**P 172 Infectious spondylodiscitis in an internal medicine department: clinical and epidemiological characteristics**

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**Introduction:** Spondylodiscitis represents an inflammatory process, localized in the vertebrae body and in the intervertebral discs. The most common location is the lumbar spine, followed by the thoracic spine. Symptoms are nonspecific, leading to a delay in diagnosis, in many cases, of several weeks. Diagnosis is performed with MRI, then blood cultures and disco-vertebral biopsy. A large number of infectious agents can cause vertebral spondylodiscitis, usually reaching the vertebra by hematogenous spread. The most commonly isolated agents are pyogenic.

In our study we try to establish the clinical and epidemiological characteristics of infectious spondylodiscitis in internal medicine department and to discuss the specific treatment.

**Patients and methods:** A retrospective study of 19 patients diagnosed of spondylodiscitis in internal medicine department from 2000 to 2010 was conducted.

**Results:** Nineteen patients, mean age of 53 years 6 months (17 and 80 years); 10 (52.6%) were male. The most frequent clinical manifestations were lumbar pain (78.9%) and fever (57.8%). Laboratory parameters of inflammation were high in most of the patients before the treatment. CT-scan and / or MRI were practiced in all patients. Infectious spondylodiscitis was most frequent in the lumbar spine. The etiological agent was isolated in all patients and in 5 (26.3%) the diagnosis was serological. Tuberculin test was positive in one case. The disco vertebral biopsy was practiced in the half of patients. The diagnosis of Pyogenic Spondylodiscitis was presumed in 11 cases (57.8%), brucella spondylodiscitis in 5 (26.3%) and tuberculosis spondylodiscitis in 3 cases (15.7%). All patients had specific antibiotic treatment. The outcome was good in all cases.

**Discussion and conclusion:** Keeping in mind unspecific clinical findings in patients with spondylodiscitis. We should always suspect spondylodiscitis when back pain occurs, in order to diagnose and treat this severe disease as early as possible. Magnetic resonance imaging is the most advantageous method in diagnosing spondylodiscitis. The main causative organisms are staphylococci (40 to 60%), even though tuberculosis can be observed in 20%. Specific antimicrobial therapy, immobilisation and reeducation are needed.

**P 173 Infectious spondylodiscitis in rheumatology**

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**Introduction:** Infectious spondylodiscitis has been diagnosed with increasing frequency. This is the consequence of expanding elderly and immunocompromised populations, the increasing use of invasive spinal procedures, use of immunosuppressive therapies and enhanced ascertainment due to the greater availability of MRI.

**Patients and methods:** This is a retrospective study involving patients diagnosed as spondylodiscitis in the Rheumatology department based on bacteriological or a set of presumption arguments between 1995 and 2012.

**Results:** 34 patients. Seventeen patients (50 %) were male with a mean age of 56,61 (25 to 89 years). Predisposing factors were found in 12 patients (35%): diabetes in 4 cases, long-term corticosteroid for chronic inflammatory rheumatism in 4 patients, cirrhosis in 2 patients and chronic renal failure in 2 cases. The lumbar spine was most affected (58%), the dorsal spine was affected in (29%) then the cervical spine (11%). A multi stage spondylodiscitis was found in 4 cases and an association with a septic arthritis has been described in 1 patient presenting cirrhosis. A neurological deficit was noted in 7 patients. Inflammation tests were disturbed in 82% of the patients. Radiographs of the spine were abnormal in all cases and only 20 patients had MRI, showing epiduritis in 8 patients and paravertebral abscess in 6 patients. The causative microorganism was identified in 22 cases (57%) : staphylococcus in 3 cases, Gram-negative germs in 4 cases, streptococcus in 3 cases, mycobacterium tuberculosis in 8 patients and brucella in 4 patients. Multi-bacterial spondylodiscitis was found in 3 patients. All patients received initially adapted antibiotics and immobilisation, the patient with a septic arthritis associated had joint drainage with needle aspiration. 6 patients have not been followed, and most of the rest showed good response (66%). Neurological complication occurred in 3 cases and sepsis occurred in 1 case.

**Conclusion:** Spondylodiscitis is an emergency which must be diagnosed on time to avoid life-threatening complications and neurological sequelae.

**P 174 Infectious spondylodiscitis in immunocompromised patients**

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**Introduction:** Infectious spondylodiscitis can have serious complications especially in immunocompromised patients with potentially high

morbidly and mortality. We conducted this study in order to analyse the clinical features, therapeutic approaches and outcome of infectious spondylodiscitis in immunocompromised patients.

**Patients and methods:** A retrospective study concerning patients suffering from spondylodiscitis and followed up for chronic diseases were identified in rheumatology department. Immunosuppression is considered in patients followed for hepatic or renal disease or under immunosuppressive therapy.

**Results:** 8 patients, from 34 infectious spondylodiscitis diagnosed, were followed up, 2 patients had hepatitis B virus-related cirrhosis, 2 patients had chronic renal failure under haemodialysis, and 4 patients suffered from chronic inflammatory arthritis (3 had rheumatoid arthritis, and 1 had polymyalgia rheumatica) treated with corticosteroid for long period. Mean age was 62 year-old, duration of symptoms varied from 2 weeks to 6 months. Fever was present in 50%. Spondylodiscitis was associated to a septic arthritis in 1 case. Progressive paraplegia was identified in 1 case. In 5 cases there were elevated laboratory markers of inflammation. CT was performed in 7 patients and MRI was performed in 4 cases showing para-vertebral abscess in 2 cases and epiduritis in one case. The microorganism was identified in 4 cases by marrow culture, 1 bacterial germ was found in 2 cases and polymicrobial in 2 cases (Klebsiella and E.Coli in 1 case, Staphylococcus Aureus and Pseudomonas Piketti in 1 case, Streptococcus B in 1 case, and Epidermidis Staphylococcus in 1 case), a Quantiferon test was positive in 2 cases. None of patient had surgical intervention. All of them were treated by associated antibiotics for 3 months to a year. 5 patients recovered to full activity, one of them had neurological persistent deficiency.

**Conclusion:** Infectious spondylodiscitis should be considered in immunocompromised patient suffering from a back pain mainly when associated to fever and laboratory markers of inflammation. An early diagnosis and a prompt administration of antibiotics are mandatory for a favourable outcome.

**P 175 Multifocal infectious spondylodiscitis**

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**Background-** Spondylodiscitis represents 4-7% of all osteomyelitis. *Mycobacterium tuberculosis* and *Staphylococcus aureus* are the most frequently involved germs. The lumbar spine is most frequently affected and multifocal involvement is rare.

The aim of this study is to determine epidemiological, clinical, therapeutic and outcome characteristics of multifocal discitis.

**Patients and methods-** A ten years retrospective study was carried out in the Infectious Diseases Department at Rabta University Hospital, Tunis, (January 2002-December 2011).

**Results-** During the study period, 168 patients were hospitalized for infectious spondylodiscitis. We included 38 cases of multifocal infectious discitis (22.75%). These were 23 men and 15 women. Their mean age was 57.47 years (24-88 years). The most frequent symptoms were back pain (97.4%), fever (76.3%) and sweats (63.2%). CT and / or spinal MRI was performed for all patients. The lumbar spine is most frequently affected (73.7%). Spondylodiscitis was associated with paravertebral abscess in 12 cases and psoas abscess in 10 cases. Epiduritis was noted in 55.3% and spinal cord compression in 21.1%. The etiology was tuberculosis in 16 cases (42.1%), brucellosis in 14 cases (36.8%), *Staphylococcus aureus* in 4 cases (10.5%), *Streptococcus B*, *E. coli* and *K. oxytoca* in one case. One patient had both tuberculosis and brucellosis. Brucellosis was confirmed by serology in all cases. Tuberculosis was confirmed by histopathology in 5 cases and microbiological study in 2 cases. All of patients had medical treatment associated to corticosteroids in 57.9% of cases and orthopedic immobilization in 36.8%. Recovery was obtained in 71.4% of cases. Nine patients were lost during follow up.

**Conclusion-** Spondylodiscitis should be considered in any febrile back pain. Multifocal involvement may be asymptomatic. Only a whole spine imaging allows positive diagnosis, specifying the number and location of the damage and potential complications.

**P 176 Contribution of disco-vertebral biopsy (DVB) in the diagnosis of infectious spondylodiscitis**

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**Introduction:** Infectious spondylodiscitis is a common cause of back pain. The disco -vertebral biopsy (DVB) is considered as the main investigation for etiologic diagnosis.

**Aim:** In this study, we aimed to evaluate the contribution of DVB in the diagnosis of infectious spondylodiscitis.

**Patient and methods:** We retrospectively reviewed the medical records of all patients diagnosed as infectious spondylodiscitis in our unit between 1993 and 2012.

**Results:** DVB was performed in 28 among 34 patients. It was conclusive in 13 cases (46%). DVB was practiced in tuberculous spondylodiscitis in 19 of 22 patients and it confirmed diagnosis in 8 cases. Histological examination showed a gyganto cellular granuloma in all cases. Caseous necrosis was noted in 4 cases and an acid-alcohol resistant bacillus (BAAR) was isolated in 2 cases. DVB was performed in 6 among 7 cases of pyogenic spondilodiscitis, the causative agent was

isolated in all cases and bacteriological tests revealed two germs in 3 cases. In Brucella spondilodiscitis, DVB was performed in 03 cases among 4 and showed a non specific remodeling in all cases. Remaining DVB showed non-specific inflammation in 9 patients.

**Conclusion:** in our study, DVB was frequently conclusive in pyogenic infection, however, in tuberculous and brucella spondylodiscitis, clinical, biological and radiological data are as important as the DVB. Our results are comparative with literature data.

**P 177 Brucellosis: clinical manifestations complications and treatment (42 cases)**

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**Introduction:** Brucellosis is the most common zoonotic infection worldwide. It is caused by intracellular gram-negative bacteria, *Brucella spp.* In Tunisia, human brucellosis was reported for the first time in 1909. It represents a notifiable disease that occurs as an endemic evolution. The physical findings depend on the duration of illness, and the disease may be attended by various complications.

**Patients and methods:** This is a retrospective study in the internal medicine department of the Military Hospital of Tunis, from January 2000 to January 2012. The aim of this study was to evaluate the clinical, laboratory findings and therapeutic features of patients with brucellosis.

**Résultats:** We have studied 42 cases of brucellosis (29 men and 13 women's), they were 46-year-old on average (16-78 years). Most came from country areas, and only 7 came from the city. The source of infection was attributable to the consumption of contaminated milk or cheese, except in 3 cases of workplace exposure (veterinarian = 1 case, laboratories = 2 cases). Brucellosis is acute in 30 patients (71%) and focused in 12 patient cases (29%): (spondylodiscitis = 8 cases, coxite = 2 cases, sacroiliitis= 3 cases, splenic abscess = 1 case). The clinical profile was made of: fever (100%), articular and muscular pains (70%), sweats (50%) and spinal symptoms (19%). The clinical diagnosis of brucellosis was made by serology in 100% of patients (rose Bengal and/or Wright). The only organism identified was *brucellosis melitensis* in 18 cases (42%). All of patients had medical treatment (rifampicin and tetracycline) associated to corticosteroids in one case (spondylodiscitis with epiduritis).

**Conclusion:** Brucellosis presents with a wide clinical spectrum. *Brucellosis melitensis* is the species most



incriminated. Eradication of the disease in humans can only be achieved by the control of the disease in animals. This necessitates a multidisciplinary approach involving both humans and animals.

**P 178 Septic arthritis of the facet joint**

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**Objective:** Septic arthritis of the posterior apophyseal joints is an extremely rare but severe infection with possibility of significant morbidity resulting from local or systemic spread of the infection. A few reports in the literature were published (fifty observations to date). We report one novel case of septic arthritis of the facet joint

**Observation:** A 71 year-old men with a history of chronic renal failure in hemodialysis stage and prostate adenocarcinoma treated with radiotherapy, presented with a two and a half months history of increasing interscapular pain and inflammatory C8 cervicobrachial right neuralgia. The patient had asthenia and night sweats without fever. Examination revealed neurological deficit C8. Laboratory examination revealed a total leucocyte count of 9,100/mm<sup>3</sup>. The ESR was 95mm and the CRP was 171mg/l. The blood cultures were negative. Chest plain showed minimal pleural effusion, the cervical spine radiography showed narrowing C6-C7. Spinal cord MRI showed a mass developed next to the C7-T1 posterior apophyseal joint with intra-canal extension. The vertebral body and disc were intact. The culture of pus of the abscess puncture was negative. The determination of income QuantiFERON was strongly positive, the tuberculous etiology was then established. Antibiotherapy was effective with resolution of pain and normalization of inflammation.

**Conclusion:** Infectious facet joint is an insidious pathology and is commonly iatrogenic. This entity should be considered in the differential diagnosis of patients with C8 Cervico brachial neuralgia, especially in the presence of fever and without spondylodiscitis and in immunocompromised patient. Once diagnosed, the prognosis for full recovery is good, although lengthy.

**P 179 Infectious osteoarthritis in children: about 12 cases**

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**Introduction:** The bone and joint infections remain rare in infants and children, Early diagnosis is difficult. Final therapeutical success depends on an early clinical diagnosis and aggressive multidisciplinary treatment

**Aims:** Describe the epidemiological, clinical,

biological, radiological profile, treatment and outcome of osteoarticular infections (IOA) in infants and children.

**Materials and methods:**

This is a retrospective study of 7 years (2005-20011), including all cases of infectious osteoarthritis of in child and infant.

**Results:** Twelve cases of infectious osteoarthritis were collected. A male predominance was noted, the average age was 7 years 8 months. Signs of inflammation were a reason for consultation in 75% of cases. The discovery was part of a systematic review for the other 3 cases, one of which had brucellosis and the two other were in sepsis. The clinical manifestations were fever in 100% of cases, bone pain in 20% of cases, joint pain in 80% of cases, swelling in 58% of cases and redness in 10 cases. Radio standard was achieved in 58% of cases. It was abnormal in 5 cases. Scintigraphy performed in more than half of cases showed increased uptake in 41.6% and a decreased uptake in 10% of cases. Ultrasonography was performed in 75% of cases. It was normal in 30% of cases; it showed a joint effusion in 60% and a subperiosteal collection in 10% of cases. MRI was performed in 3 cases pathological. The diagnosis was osteoarthritis in 60% of cases, osteomyelitis in 16% of cases, osteitis in 16% of cases, a spondilodiscite in 8% cases. Surgical treatment was necessary in 75% of cases. Six were kept in the medical department, among which 4 had a favorable outcome. Two of our patients had an immune deficiency.

**Conclusion:** In the absence of an early and appropriate antibiotic treatment, the risk of locoregional recurrence is high and generally making the functional prognosis.

**P 180 Abscesses and osteoarthritis during Behçet's disease secondary to an aortoenteric fistula**

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**Introduction:** Aorto enteric fistulas are rare and arise only in 0,6 to 2 % of the cases. They can beat the origin of abscess of lower limbs, of septic arthritises or osteomyelitis.

We report the observation of a patient affected by Behçet's disease having presented the abscesses of lower limbs, septic arthritis of the hip and osteomyelitis in touch with an aorto-enteric fistula.

**Observation:** It is about a 35-year-old patient, affected by a behçet's disease diagnosed in 2003 and treated by corticoïdes and immunosuppressors, the evolution was marked by the arisen of an aortic abdominal anevrysm in 2008 requiring the implementation of an aorto-aortic prosthesis. Three years later, here consults for lumbago evolving for 2 months. He complained about severe pains in the palpation of buttocks, the mobilization of hips was impossible. Routine blood analysis showed an hyperleucocytosis with neutrophile ascendancy and an

increase of inflammatory indices (erythrocytes sedimentation rate (ESR): 60 mm/h; C-reactive protein: 268 mg/l). An abdominal angio Computedtomography showed a thrombosis of the prosthesis and an aorto-enteric fistula (air bubbles within a wall thrombus) and the collections of the left buttock and the later face of the right thigh. He benefited from a surgical treatment of abscesses, associated to an antibiotic treatment, heparine and to boli of methyl-prednisolone relieved by the prednisone at a dose of 1 mg / kg / day

In 2011, the patient presented an ischaemia of the left lower limb. A desobliteration by probe of Fogarty was practiced with extraction of the thrombus. The evolution was marked by an immediate thrombosis. He was taken back by posterior popliteo-tibial bypass but in front of the obstinacy of the ischaemia, the conduct was the amputation of the left leg. The evolution was marked by stump's infection treated by surgical intervention. A few days later, he presented insomniant pains in the left hip. The mobilization of the hip ached. Routine blood analysis showed an hyperleucocytosis with neutrophile ascendancy and an increase of inflammatory indices. Besides the MRI of the left hip showed collections of para articular mild parts with an important raising of the articular synovial membrane and a small under cortical cephalic collection. The articular draining had returned some frank pus. The antibiogramme showed *Esherishia coli*. The patient thus had a surgical treatment and he was treated by the imipeneme associated with the gentamicine and the pristinamicyne. The evolution was marked by a progressive decline of C-reactive protein at the end of 40 days of treatment

**Conclusion:** The peculiarity of our observation is that an aortico-enteric fistula was at the origin of abscess of lower limbs and osteoarthritis at a patient with behçet's disease.

**P 181 Acute gonococcal arthritis presenting in a young woman: a case report**

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**Introduction:** Gonococcal arthritis results from blood dissemination of *Neisseria gonorrhoeae* from sexually acquired mucosal infection. Migratory polyarthralgias, tenosynovitis, dermatitis and fever are the most common symptoms. True arthritis occurs in less than 50% of cases. Knees, wrist, ankles, and elbows are most often infected. Polyarthritits can occur, but symmetrical involvement is unusual.

**Case presentation:** A 44-year-old woman with a history of diabetes mellitus presented to the Emergency Department complaining of left knee and bilateral wrists pain. The patient stated that she developed pain in the left knee and bilateral wrists about one week prior. She presented to our hospital because the pain was worsening

and limiting her activities. She denied any history of joint disease. She had had no recent fevers, rash or other symptoms. She is married and denied unprotected sexual intercourse. Physical examination showed tenderness and swollen of the left knee and the wrists. The oropharynx was clear, there was no cervical adenopathy, breath sounds and heart sounds were normal. The patient had no rash. The patient's serum white blood cell count was 10.760 /ml with 62% neutrophils. The initial C-reactive protein was 247.5 mg/l and sedimentation rate was 100 mm1H. Needle aspiration of the left knee revealed cloudy fluid. The fluid was sent for cell count, Gram's stain, and culture. The fluid cell count was many cells/mm<sup>3</sup> with 95% neutrophils. Culture of the fluid subsequently grew *Neisseria gonorrhoeae*. Blood cultures remained negative. The patient underwent left knee arthroscopy and received a 14-day course of cefotaxime. She was discharged home in good condition to follow-up with orthopedics and physical therapy.

**Conclusion:** Due to the high rate of other sexually transmitted diseases in patients with gonococcal arthritis, patients should be tested for chlamydial infection and treated by tetracycline or doxycycline for 7 days or azithromycin (a single 1 g oral dose). The patient should also be tested for HIV and syphilis initially and after 4–6 weeks. The patient's sexual partners must be examined and treated to prevent re-infection and dissemination of the infection. Education about the sexual mode of transmission of the disease and the means of preventing sexually transmitted diseases is an integral part of the treatment.

**P 182 Pneumococcal septic arthritis (PSA): review of 5 cases**

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**Introduction:** Pneumoniae and meningitis are the two most frequent manifestations of *Streptococcus pneumoniae* infection. PSA is considered to be relatively uncommon. The aims of this paper is to identify clinical features, approaches to management and predictors of outcomes in patients with PSA.

**Patients and methods:** Five patients with (PSA) were identified from the laboratory records of the Sahloul university hospital. (PSA) was defined by positive results of Gram staining of joint fluid, isolation of *S.pneumoniae* from synovial fluid with or without a positive blood culture. Furthermore clinical diagnosis and imaging study had been notified.

**Results:** Common features in adults with (SPA) included advanced age (median=54years) while all children included in this study were under the age of two years. Among our patients, antecedent upper respiratory infection occurred in two cases, risk factors for (PSA)

have been notified in one case and an underlying extra-articular pneumococcal infection has been presented by only one patient. In children, hip involvement was most common. While among adults, we noticed the involvement of knee, shoulder and wrist joints, each one in one case.

In all cases, biological tests came out with hyperleucocytosis, high level of C-reactive protein and increased erythrocyte sedimentation rate. Joint fluid showed a predominance of neutrophils and Gram positive diplococci were seen in the joint fluid of three patients. Moreover, *S.pneumoniae* was isolated from both, blood and joint culture in two cases. The reported infections were caused by penicillin-susceptible strains. Thus, our patients have been treated with intravenous antibiotics (penicillins or third generation-cephalosporins (TGC)) in association with appropriate joint drainage. All our patients survived their infection and had a good functional outcome.

**Conclusion:** SPA is a rarely reported manifestation of disease due to *S.pneumoniae*. Infection with drug-resistant organisms is likely to be an increasing problem in the future. So physicians must take it into account before antibiotics indication.

**P 183 *Haemophilus influenzae*: a cause of septic arthritis in children**

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**Introduction:** *Haemophilus influenzae* (HI) is a human's oropharynx commensal bacteria. It's also responsible for a large spectrum of diseases and a major cause of morbidity and mortality in children. Septic arthritis is one of invasive disease emergency.

**Objective:** The aim of this study was to determine HI septic arthritis frequency and their epidemiological and microbiological features.

**Material and Methods:** This is a retrospective study performed at the microbiological laboratory of the children's hospital of Tunis. It involved all HI positive arthrocenteses that reached the laboratory between 01/01/2008 and 25/02/2012. The bacterial identification was performed by conventional methods and the antimicrobial susceptibility was assessed using the CA-SFM guidelines.

**Results:** During the study period, 92 joint aspirations were positive, only 7 of them had isolated a HI strain (7.6%). The mean age of these patients was 16 months. A single joint was affected in all patients. One of the infringement was localized at the upper limb (left elbow) and six at the lower one (a knee right, 2 left ankle, left hip and 2 right hip). All patients were without significant medical history and were not vaccinated against HI. Serotype b was the most common (4 cases) followed by non typable strains (2

cases). Resistance to amoxicillin has affected 57%. All strains were sensitive to cefotaxime, amoxicillin clavulanic acid, pristinamycin and nalidixic acid. The kanamycin resistance was 45%. In four cases (30%), blood culture have isolates the some bacterium.

The treatment was surgery combined with antibiotic therapy using amoxicillin-clavulanic acid for 6 weeks with an initial combination therapy involving an aminoglycoside and 3 weeks of parenteral treatment. All patients reported significant improvement and regained active movement.

**Conclusion:** HI arthritis is fairly common among unvaccinated infants. The large joints are the most affected especially the hip and ankle. The serotype b remains the most found.

**P 184 Uncommon causes of articular bone infection: 9 cases**

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**Introduction:** Unusual germs in the articular bone infections are rarely complained and must be sought notably in a particular field. We report the characteristics of these infections from 9 observations.

**Patients and methods:** We have collected 9 patients (sex ratio = 3) on average 37 years old. The defects underlying were systemic lupus erythematosus in a case, diabetes in 2 cases and paraplegia in a case. Four patients were hospitalized with septic arthritis (*Salmonella enteritidis* = 1 case, *H. influenzae* = 1 case, *Streptococcus pneumoniae* = 1 case). All patients have well evolved with antibiotic treatment for an average of 3 weeks. A patient was hospitalized for infectious Spondylitis to *Citrobacter diversus* and evolved well with antibiotic treatment for 6 months. Four cases of Osteitis (*Propionibacterium acnes* = 1 cases, *actinomyces spp.* = 1 cases, *Rhizopus oryzae* = 2 cases) required 6 to 12 months of antibiotics. One of the sick of mucormycosis died in a serious septic table.

**Conclusion:** These comments describe an exceptional variety of bone infections' germs. Weakened field as well as the existence of gateway have favoured the development of these infections. The prognosis remains reserved for some of them and only the antibiotic treatment and / or early surgery allows healing.



**P 185 Brucellar spondylodiscitis: about 8 cases**

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**Introduction:** Brucellosis is a systemic infection caused by facultative intracellular bacteria of the genus *Brucella*. The genus was named after David Bruce who first isolated *Brucella* in 1887 from soldiers with Malta fever. Osteoarticular involvement including spondylodiscitis represents the most common complication of brucellosis. The regional distribution of the spondylitis lesions showed a predilection to the lumbar spine followed by the cervical and thoracic spine.

**Patients and methods:** This is a retrospective study in the service of internal medicine department of the Military Hospital of Tunis, from January 2000 to January 2012 including patients having brucellar spondylodiscitis.

**Résultats:** We have studied 8 cases of brucellosis (6 men and 2 women), they were 56-year-old on average (31-78 years). They were from country areas and the source of infection was almost attributable to the consumption of contaminated milk or cheese in all cases. The clinical profile was made of prolonged fever and backache (100%), associated to neurological signs (67%). The location of the spondylodiscitis was lumbar (5 cases), dorsal (3 cases) and cervical (1 case). Spondylodiscitis was associated with vertebral abscess in one case and epiduritis in 1 case. Diagnosis of brucellosis was confirmed by serology (100%). The organism was identified in 6 cases: *brucellosis melitensis*. All of patients had medical treatment (rifampicin and tetracycline) associated to corticosteroids (1 case) and orthopedic immobilization (4 cases).

**Conclusion:** Brucellosis presents with a wide clinical spectrum, it represents a major public health problem in the Mediterranean region. Brucellar spondylodiscitis should be included in the differential diagnosis of back pain. Eradication of the disease in humans needs a multidisciplinary approach involving both humans and animals.

**P 186 Osteoarticular brucellosis in children**

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**Introduction:** Brucellosis is an endemic infection in Tunisia. It's a zoonotic infection which can be transmitted accidentally to human and caused by *Brucella* species which is a Gram-negative facultative intracellular coccobacillus. Osteoarticular disease is the most common infectious complication which occurs

during subacute brucellosis. We report three cases of brucellosis with osteoarticular achievement as the first clinical manifestation of the disease.

**Cases Reports** A 09-year-old girl (P1) and two boys of 05 and 13 years (P2 and P3) were all admitted to the children's hospital for the management of a septic arthritis. It was a monoarticular localization in 2 cases (hip in P1 and knee in P3) and a pauciarticular one (ankle and knee) in patient P2. Physical examination showed that all patients presented painful at the mobilization of the joints affected associated with fever only in two cases (P1 and P3). The remainder of the physical examination was normal in all our patients. An increase of the inflammatory markers was notified in 2 cases (P1 and P3) with neutropenia in P1 whereas in P2, the assessment was normal. All children's had positive *Brucella* blood cultures. Serological investigation showed that the Rose Bengala and the Wright's sero-agglutination were positive in all cases. Patients were treated with rifampin in combination with a cycline in two of them and with trimethoprim-sulfamethoxazole in the other one. A good clinical outcome was notified for patients P1 et P2 whereas the P3 patient is still under treatment.

**Conclusion:** The above cases underline the importance of the knowledge of atypical varieties of brucellosis. The brucellosis serology needs to take part in the etiological workup of an infectious osteoarthritis when a classic infectious cause cannot be proved. Blood cultures are essential to carry out, even in the case of apyrexia.

**P 187 Vertebral hydatidosis: report of 7 cases**

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**Objective:** Describe the different epidemiological, clinical features of spinal hydatid disease and the therapeutic and evolutionary aspects of this infection.

**Patients and methods:** This retrospective study included seven patients managed between 1<sup>st</sup> January 1994 and 31 December 2010 for histologically documented hydatid disease of the bone hospitalized in the Infectious Disease Department and Neurosurgery of the EPS F. Bourguiba of Monastir (Tunisia). The analysis was focused on the epidemiological, clinical, bacteriological, radiological patterns as well as therapeutic and evolutionary modalities.

**Results:** five men and 2 women were included with mean age of 39 years (21-60 years). The concept of contagion was noted in all cases, the temperature was normal in all cases and an inflammatory rachialgia was constant. Biologically, leucocytosis was noted in 2 cases and an elevated erythrocyte sedimentation rate (ESR) in

4 cases. Hydatid serology was positive in all cases. CT and / or MRI of the thoracolumbar spine showed multicystic osteolysis in all cases. Thoracic involvement was present in 4 cases, lumbar in 3 cases and sacral in one case. Vertebral collapse was noted in 2 cases, extension into spinal canal was noted in 4 cases and pulmonary localization was noted in 2 cases. Pathological examination of samples taken at the spinal level has confirmed the diagnosis given the existence of a cuticular membrane and numerous acellular concentric lamellae. Surgical decompression with removal of cyst was performed in all cases. Associated medical treatment with albendazole 400 mg, 2 times daily for one year was instituted in 5 cases. Recurrences were noted in 6 cases.

**Conclusion:** The severity of vertebral echinococcosis is related to the neurological complications and therapeutic problems. The main treatment is surgical removal of hydatidosis associated to medical therapy to reduce post surgical dissemination and relapse. In endemic countries prevention and health education are the best measures.

**P 188 Solitary Hydatid Cyst in the Mandible: A Case Report**

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**Introduction:** Echinococcosis is a parasitic infection caused by the dog tapeworm *Echinococcus granulosus*. The most common anatomic location of hydatid disease is the liver, followed by the lung. Hydatidosis is located in the bones in 0.5% to 2% of all cases. A hydatid cyst can be seen in any part of the body. However, primary hydatid cyst of the mandible is exceedingly rare.

**Methods:** We report the case of a mandibular hydatidosis in order to characterize its clinical and radiological features and specify its treatment aspects.

**Results:** The patient was a 32-year-old male presented with a 2-years history of localized painless swelling on the left side of the lower jawbone. Clinical examination revealed a hard and painless swelling in the left mandibular angle. The left inferior alveolar nerve was intact and there were no palpable lymphadenopathy. Intraoral examination revealed no carious teeth in any quadrants of the lower or upper jaw. A panoramic view objectified a radiolucent angular image blowing both lingual and buccal cortices. A computed tomography demonstrated a well-demarcated radiolucent lesion in the left mandibular angle. Blood count was within normal limits. A resection of the tumor and of the adjacent granulation tissue was performed. Pathological examination concluded to an inflammatory pseudo tumor with the presence of a foreign body reaction around a parasitic body evoking the diagnosis of alveolar hydatidosis. Hydatid serology was made after

two months back negative.

**Conclusion:** The interesting aspect of cases with solitary cysts in uncommon locations is the absence of the disease in the liver and the lungs. Osseous hydatidosis should be treated with radical resection with a wide margin of healthy tissue, which is the treatment of choice in cases of head and neck hydatid cyst, since there is no effective medical treatment.

**P 189 Infections in diabetic patients descriptive study of 230 cases**

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**Introduction:** Infections are frequent and serious complications at the diabetes. To develop the interaction between diabetes and infections, we made a retrospective descriptive study about 230 records of diabetics hospitalized at least once for infectious disease over a period of eleven years.

**Results:** Our study showed that infections represent 30.1% of hospitalization among diabetics' grounds during the study period. We've compiled 103 men and 127 women (20 to 97 years). We found a prevalence of diabetes type 2 (93%) with an average age of 9 years and 7 months, and a higher frequency of infections in first years of diabetes. Third one was imbalance during the 3 months that preceded the infective episode occurred 85.7% of cases and during infection in 92.2% of cases with a metabolic decompensation 30.2% of cases. Infections encountered in our study were from 295 infectious, most frequent are: skin (38.3%), urinary (34.9%) and respiratory (10.8%) systems. The presence of a factor favoring the onset of infection was noted in 57.2% of cases. Fever was present in 42.3% of cases and inflammatory syndrome was not constant in any infection. In most cases, infections were bacterial (87.5%) especially at *Staphylococcus aureus* in the genesis of skin infections and *Escherichia coli* in the genesis of urinary infections. Specific bacterial infections were found in two cases of renal and pulmonary tuberculosis. Penicillin, cephalosporin and quinolon were most used as antibiotics. Evolution was favorable in 70.2 % of cases.

**Conclusion:** Infections at diabetes remains a common problem, serious and source of high morbidity with significant socio-economic consequences. Its prevention is necessary.

**P 190 *Helicobacter pylori* prevalence in type 2 diabetes patients with dyspeptic symptoms and glycemc control and late complications.**

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**Introduction:** There are contradictory reports on *Helicobacter pylori* prevalence and its relationship to late complications of diabetes mellitus (DM). The aim of this study was to determine the prevalence of *Helicobacter pylori* (HP) infection in type 2 DM patients and to evaluate the relationship between HP infection and the glycemc control, late complications.

**Materials and methods:** A total of 30 type 2 DM patients upper gastrointestinal symptoms were enrolled in the study. All patients underwent upper gastrointestinal endoscopy with biopsy specimens obtained from gastric antrum and corpus. *H. pylori* status was evaluated in each patient by histopathological examination. Plasma glucose, HbA1c, microalbuminuria in 24 h collected urine were performed in all subjects.

**Results:** The prevalence of *H. pylori* infection was 66 % among type 2 diabetic patients. The duration of diabetes, fasting blood glucose and haemoglobin A1c (HbA1c) levels, nephropathy and retinopathy prevalence did not differ significantly between the two groups (HP +/- HP-). A statistically significant correlation was found between HP infection and the presence of neuropathy (P = 0.01).

**Conclusion:** The prevalence of *H. pylori* infection did not differ significantly between the diabetic patients and nondiabetic controls. Interestingly, diabetics with *H. pylori* infection had a higher incidence of neuropathy, although there was no association between the duration and regulation of diabetes, retinopathy, nephropathy and *H. pylori* status.

**P 191 Pyogenic liver abscess in diabetics: About 15 cases**

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**Introduction:** Diabetes is a main predisposing factor to infections, especially the pyogenic liver abscess which take a misleading aspect.

The aim of this study was to estimate the prevalence of pyogenic liver abscess in diabetic patients, to describe the characteristics of patients with pyogenic liver abscesses and study the clinical, morphological, biological, and therapeutic aspects of this pathology.

**Materials and methods:** This is retrospective study of 15 diabetic patients with pyogenic liver abscess hospitalized in department of Endocrinology diabetes metabolism in Hedi Chaker hospital between January

1998 and December 2009 among 40 872 patients.

**Results:** The prevalence of pyogenic liver abscess in diabetics was 0.03%. The average age of our patients was 62 years. 11 patients (72.3%) were male and 8 patients (72.2%) were type 2 diabetics. Mean duration of diabetes was 15.2 years. Diabetes was uncontrolled with a median blood glucose level of 18.1 mmol / l. ketoacidosis was found in 4 patients. Fever was found in 14 patients (93.3%), right upper quadrant pain in 11 patients (73.3%) and impaired general condition in 8 patients (53.3%). Hepatomegaly was present in 5 cases (33.3%), jaundice in 3 cases (20%) and a palpable abdominal mass in the right upper quadrant in 2 cases (13.3%). The neutrophilic leukocytosis was present in 66.7% of patients and inflammation in 33.3%.

Abdominal ultrasound was a morphological examination of first intention in all patients, and has put the diagnosis in 93.3% of cases. The portal entry was biliary in 6 patients (40%) and hematogenous in 2 patients (13.3%). Gram negative bacilli were the bacteria most frequently found, *Klebsiella pneumoniae* in 5 cases (50%) and *Escherichia coli* in 2 cases (20%). All patients received empirical antibiotherapy, including triple therapy immediately in 12 cases (80%). The association cefotaxime + metronidazole + gentamicin combination was the most used, in 5 cases (33.3%). Percutaneous drainage under radiological guidance was performed in 11 patients (73.3%). 12 patients (80%) underwent surgical treatment.

**Conclusion:** The liver abscess is a specific ground septic location in diabetics, prognosis depends on quick diagnosis and completeness and appropriate treatment.

**P 192 Microbiological features of skin and soft tissue infections in Algiers.**

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**Introduction and Objectives:** Cutaneous infections are common diseases in clinical practice both in ambulatory and hospital care. Their severity depends on location, depth and sensitivity of causal bacteria to currently used antibiotics.

The purpose of the current study was to determine the aetiologies and the antimicrobial resistance patterns among the bacterial pathogens from infections of the skin and soft tissue (SSTI) among hospitalized patients in the service of infectiology and outpatients.

**Materials and methods:** A retrospective study carried out at the microbiology laboratory, on a series of bacteria recovered from January 1,2006 to December 31,2009. The samples were placed in culture, the isolates were identified by standard procedures including Api syst ( bioMérieux) and the antimicrobial susceptibility



testing were performed as recommended by the clinical laboratory standard institute (CLSI).

The data were analysed on whonet 5.4 and epi-info v 06.4 software. Statistical comparisons were made by the Chi 2 test ( $\chi^2$ ). The  $\hat{U}$ - value less or equal to 0.05 was considered statistically significant.

**Results:** Among 327 infections, a total of 487 bacterial isolates were reported.

*Staphylococcus aureus* (58.93%) was the predominant etiologic agent causing SSTI, followed by Enterobacteriaceae (19.09%), *Streptococcus spp* (11.29%) and *Pseudomonas aeruginosa* (10.67%).

For *S. aureus* strains, the ratio of oxacillin-resistant isolates (MRSA+) was 51.56% (the difference between the percentage of MRSA+ among in and outpatients was statistically not significant (DNS)). The MRSA + strains showed resistance to fusidic acid (40,54%) and (33.%) to macrolides. The resistance rates of Enterobacteriaceae and *P. aeruginosa* to third generation cephalosporins were respectively 9.67%, 17.30% (DNS). The macrolide resistance rate of *Streptococcus spp* was above 12%

**Conclusion:** High resistance rates to antimicrobial drugs among the most frequent bacterial pathogens were observed, which involves surveillance study and the implementation of antibiotic resistance controls measures.

#### **P 193 Malignant staphylococcal infection of the face: 63 cases**

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**Introduction:** Severe staphylococcal infections are frequent in Tunisia, and notably those affecting the face. Our aim is to describe the epidemiological, clinical, bacteriological and therapeutic features of malignant staphylococcal infection of the face.

**Materials and methods:** A retrospective study was conducted between 1997 and 2011 including all patients admitted for malignant staphylococcal infection of the face at Infectious diseases department of La Rabta Hospital.

**Results:** 63 patients were included. The average age of our patients is 38.4 years (14-80 years) with a male predominance (sex ratio = 2.26). A contributing factor is noted in 11 cases. The average time for consultation is 3 days (1 to 8 days). A gateway is noted in 45 cases. It was furuncle of the face in 80%. Fever is noted in 55 cases, impaired general condition in 11 cases and a disorder of consciousness in 1 case. The erythema was unilateral in 61 cases and bilateral in 2 cases. Complications at admission were noted in 3 cases (4.8%). A leukocytosis was noted in 35 cases and high CRP in 15 cases. Blood samples were positive in 7 cases and skin samples in 10

cases. Methicillin sensitive *staphylococcus aureus* was identified in most cases (15/17). Monotherapy is prescribed in 11 cases. The mean duration of antibiotic treatment was 15 days (10-28 days). Corticosteroids were prescribed for 5 days in 7 cases. The outcome was favorable in 57 cases. Sequelae was noted in 2 cases (3.2%) and death in 1 case (1.6%).

**Conclusion:** Lethal cases and sequelae were due to delayed treatment. This demonstrates the importance of prevention by an early treatment of facial skin infections.

#### **P 194 Risk factors, causative organisms and clinical outcomes of severe keratitis**

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**Purpose:** To identify risk factors, microbiological findings and clinical outcome of severe infective keratitis.

**Methods:** all cases of presumed infective keratitis admitted at the institute of ophthalmology (department B) between January 2000 and august 2008 were identified. Medical records of all patients were retrospectively reviewed with respect to clinical features, risk factors, management, and outcome.

**Results:** one hundred and seventy five patients were admitted with a diagnosis of presumed microbial keratitis during the study period. The mean age of patients at the time of diagnosis was 62,75 years (range: 6 months - 97years), and the male to female ratio was 89/86 (50,85%,49,14%). The mean time from first symptoms or signs and presentation to hospital was 16 days. The majority of patients, 70,28% had at least one of the risk factors commonly associated with infective keratitis including ocular surface disease (22,85%), previous ocular surgery (19,42%), contact lens wear (9,7%), topical corticosteroid use (21,14%), and ocular trauma (26,85%). An organism was identified in 56,57% of cases. Sixty eight percent of all positive cultures involved gram positive bacteria. The most common isolates identified were staphylococcus epidermidis (42%), pseudomonas (16%) and streptococcus pneumonia (8%). In addition, fungi were isolated in 9%. The mean hospital stay was 14±6 days. Longer duration of stay was associated with the presence of hypopyon, larger ulcers, previous ocular surgery, and poor visual acuity.

**Conclusions:** infective keratitis is an important cause of ocular morbidity. The role of initial therapy for microbial keratitis remains important. Many cases of severe keratitis might be avoided, or their severity reduced, by appropriate education of patients and ophthalmologists.

**P 195 Infection in children with hemophilia: Experience in pediatric hospital, Patna**

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**Introduction:** Hemophilia; Constitutional is the most common coagulopathy with hemophilia A is 5 times more common than hemophilia B. It is Serious not only because the risk of joint and muscle scars but also viral contamination in transfusions and the risk of post-traumatic infections It requires a multidisciplinary management.

**Objectives:** The aim of our study is to determine the frequency and severity of infections in children with hemophilia and demonstrate the value of prophylaxis in the prevention of bleeding

**Materials and methods:** We conducted a retrospective study of children's cases with hemophilia hospitalized for a period of 4.5 years (01-01-2007 to 31-07-2011)

**Results:** 26 patients with complicated hemophilia were included. The incidence varies between 0.90% and 2.4%. The child with hemophilia may be hospitalized for all age groups with a maximum 10-year. Only 38.46% of our patients have a family history of hemophilia. 61.54% of them have a severe form (factor VIII or IX <1%) and 38.88% were hospitalized for a hemarthrosis of the knee. The rest is represented by the other known locations bleeding in children with hemophilia. 14 of our patients developed infections (53.8%), including 8 of knee arthritis, arthritis of the ankle, two subcutaneous abscesses, a dental abscess and 2 cases of hepatitis B. Five patients had a mean hospital stay between 2 and 6 times/year, are subject to a prophylactic treatment. A marked reduction in number of hospital after administration of prophylactic treatment was noted.

**Conclusion:** Our study confirmed the significant incidence of infection in children with hemophilia, dominated by post-traumatic infections with tow cases of hepatitis B. We should intensify the education of our children and prescribe prophylactic treatment to reduce the incidence of bleeding and risk of infections

**P 196 Evaluation of the Nitrite and Leukocyte Esterase Tests for the diagnosis of acute urinary tract infection**

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**Objective:** To determine sensitivity, specificity, positive predictive value, and negative predictive value, in adult patients who have one or more symptoms suggestive of urinary tract infection (UTI).

**Methods:** We conducted a prospective study between october 14, 2011 and february 14, 2012. All hospitalized

patients suspected of having UTI provided a fresh midstream urine sample which was used by the practitioner to perform a dipstick test to nitrites and leukocyte esterase (LE) activity, according to the manufacturer's instructions. Urine culture was performed in all patients. Plurimicrobial urine cultures were ruled out from the study. Sensitivity, specificity, positive (PPV) and negative predictive values (NPV) of both the LE and nitrites were calculated.

**Results:** Dipstick and urine culture were performed in 77 patients, 22 males and 55 Females, sex-ratio 0,4. Urine culture was positive in 33 cases (43%). The most commonly isolated microorganism was *Escherichia coli* (26 cases, 78%); followed by *Proteus mirabilis*, *Klebsiella pneumoniae* (2 cases each); *Klebsiella oxytoca*, *Enterococcus faecalis* and *Staphylococcus epidermidis* (1 case each). Nitrites were negative in the the urine specimens who isolated *Enterococcus faecalis* and *Staphylococcus epidermidis*. LE test had high sensitivity (88%) and NPV (85%) to detect UTI. Nitrites test had high specificity (90%) and PPV (76%) but low sensitivity (39%).

**Conclusion:** In our study, negative LE test rules out the diagnosis of UTI with a probability of 85%, and positive nitrites test predicts UTI with a probability of 76%. Dipstick test is a simple and useful mean in the management of patients suspected of having UTI, however urine culture remains the gold standard.

**P 197 Acute pyelonephritis in patients with diabetes mellitus (Study of 348 cases)**

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**Introduction:** Diabetes mellitus has long been widely considered to be associated with an increased risk of urinary tract infection.

**Subjects and methods:** In order to describe the epidemiological characteristics, clinical finding and outcome of acute pyelonephritis in diabetic patients, we performed a retrospective study of 348 diabetic patients with acute pyelonephritis treated in Infectious Diseases Departement of Sfax between January 2004 and December 2010.

**Results:** The average age of our patients was 63 years, with predominance in the age group over 60 years (65%). The majority of patients were female (72,7%). Diabetes was diagnosed at hospitalization in 26 cases (7%). The majority of our patients were type 2 diabetics (91%). Duration of diabetes was on average 13 years. A degenerative complication was noted in 34,5% of cases. Glycemic control is poor with an average value of blood glucose at admission to 14,7 mmol/l. Ketotic decompensation was noted in 59 patients (17%). The germ most commonly involved was *Escherichia coli*

(61,6% of positive urine cultures). Blood cultures, made in 241 patients, were positive in 54 cases (22,4%). Renal ultrasound performed in 301 patients was normal in 47,5% of cases. It showed dilated urinary tract (77 cases), a renal abscess (2 cases), a pyonephrosis (1 case) and an emphysematous pyelonephritis (3 cases). Third-generation cephalosporins (77,2%) and fluoroquinolones (18,3%) were the most frequently prescribed antibiotics. The outcome of acute pyelonephritis was marked by the occurrence of certain complications: 3 cases of emphysematous pyelonephritis, 2 cases of renal abscess. The cure was obtained in 46,2% of cases. A relapse was noted in 5,1% of cases. Reinfection was observed in 17% of cases. The outcome was fatal in 13 cases (3,7%). Septic shock was the leading cause of death (3 cases).

**Conclusion:** These results highlight the importance for diabetic patients to take preventive measures in order to avoid urinary tract infections and their complications.

**P 198 Acute pyelonephritis in pregnancy: no complicated form, unsatisfying follow-up**

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**Introduction:** Pyelonephritis is the most common urinary tract complication in pregnancy that may threaten both maternal and fetal prognosis.

**Patients and methods:** It's a retrospective study which analyzed 69 episodes of acute pyelonephritis in pregnancy diagnosed between January 2000 and December 2011 in the infectious disease departments of two hospitals. The aim of this study was to describe epidemiologic, clinical, therapeutic and microbiologic features of acute pyelonephritis in pregnancy. Only confirmed cases with a positive urine culture were included.

**Results:** Among 162 cases of acute pyelonephritis only 69 were included. The median age was 25 years. Half cases (51,6%) were hospitalized at the second trimester of pregnancy. Twenty-four patients (34,7%) gave history to acute pyelonephritis and 2 to urinary lithiasis. The main symptoms were: fever and lumbar pain in 61 patients (88%) each, urinary troubles in 59 patients (85%) and a low genital infection in 9 cases. The mean delay of hospitalization was 6 days. The most frequent isolated germs were *E. Coli* in 51 cases (74%), *Klebsiella.Pneumoniae* in 6 cases (8,6%), *Staphylococcus.Saprophyticus* in 5 cases (7,2%). Concerning Enterobacteriaceae strains, 21 were multisensitive, 1 producing extended-spectrum-beta-lactamase, and 1 resistant to fluoroquinolones. Ultrasonographic exam carried out on 56 patients was normal in 42 cases. In the other cases it showed a discrete or

a moderate dilatation of the excretory tract. No focal pyelonephritis was found. The most prescribed intra-venous antibiotic was cefotaxim in 56 cases. The mean duration of intravenous therapy was 10 days. At discharge the most prescribed treatment was ceftriaxon in 19 cases and cefixim in 8 cases. Clinical evolution was favorable in 65 cases. Four cases of relapses were noted. Monthly follow-up was respected only in four cases (5,7%).

**Conclusion:** Our series showed no complicated forms of pyelonephritis in pregnancy. This condition doesn't dispense from an adequate follow-up that must be promoted.

**P 199 Can we shorten the duration of treatment of a simple women acute pyelonephritis in 5 days**

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**Objective:** To evaluate the effectiveness and tolerability of a short course treatment with gentamicin in simple acute pyelonephritis of women (15-60 years).

**Methods and patients:** Randomized controlled trials involved 45 adult women with acute simple pyelonephritis. The patients were distributed, by drawing lots in 2 groups: group A (gentamicin, 3-4 mg/kg/d in a single IM injection for 5 days) and group B (gentamicin, 3-4 mg/kg/d in a single IM injection for 7 days). A dosage of gentamicin was performed 1 hour before the 2nd injection of gentamicin (minimal concentration), 1 hour after injection (maximal concentration) and 48 hours after stopping of treatment (residual concentration). The statistical analysis was performed by SPSS 17.0 (significant level  $p < 0.05$ ).

**Results:** Forty patients were eligible in perprotocole: 20 appartened in group A and 20 appartened in group B, with a mean age of 32.6 years (15-56 years) in group A and 33.3 years (15-60 years) in group B ( $p=0.85$ ). *Esherichia coli* was the most frequent species, isolated in 20 cases (50%), ten patients in each group. The rates of clinical success and bacteriologic eradication at the end of treatment and 2, 6 weeks after were respectively: 100%, 100% and 100% in group A and 100%, 100% and 95% in group B ( $p=0.31$ ). Only one recurrence occurred in group B after 6 weeks. The minimal, maximal and residual average concentration were respectively:  $0.2 \pm 0.03 \mu\text{g/ml}$ ;  $10.4 \pm 1 \mu\text{g/ml}$ ;  $0.1 \pm 0.02 \mu\text{g/ml}$ .

**Conclusion:** This study demonstrated that gentamicin 3 mg/kg once daily for 5 days was as effective and safe as same regimen treatment for 7 days in the treatment of simple acute pyelonephritis of women. Both regimen treatments showed bacteriological eradication that was not significantly different.



**P 200 Evaluation of pyelonephritis antibiotic treatment in the first 24 hours in hospital La Rabta**

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**Introduction:** Acute pyelonephritis is a common infection which predominates in female patients (63,4%). Antibiotic prescription in these infections needs a good knowledge of therapeutic strategies.

**Objectives:** The aim of our study is to evaluate the compliance of the first antibiotic prescription (based on AFSSAPS' recommendations and national therapeutic consensus) and the treatment's cost in the first 24 hours of pyelonephritis in hospital La Rabta.

**Materials and methods:**

-This is a retrospective study during 4 months (1<sup>st</sup> October to 31<sup>st</sup> January 2012) including 210 patients hospitalized in hospital La Rabta for pyelonephritis in different clinical services.

-AFSSAPS recommendations

-National therapeutic consensus

**Results:** Cefotaxim 1g and ciprofloxacin 200mg are the most prescribed molecules in the treatment of pyelonephritis (respectively 30% and 24%). These molecules are followed by ceftriaxon 1g (13%) and ofloxacin 200mg (10%). The injectable form is the only form used for the first 24 hours. The compliance with AFSSAPS' recommendations (the choice of molecule and dosage), taken as a reference for this study, was observed in 79% of prescriptions and 21% of prescriptions were proved to be non-compliant.

The cost's study shows that ceftriaxon (1g/day) presents the best cost-benefit ratio with a daily cost of 2d688/day, this molecule is less prescribed than cefotaxim (3g/day): 3d620/day.

The second most prescribed molecule is the ciprofloxacin (800mg/day) with a daily cost of 13d200/day. The daily cost of ofloxacin (400mg/day) is 6d404/day.

**Conclusion:** For better care during the first 24 hours of pyelonephritis, it is necessary to develop protocols to standardize the prescriptions in hospital.

**P 201 Evaluation of dose adjustment of antibiotics in a urology department**

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**Introduction:** Kidney failure is responsible for iatrogenic disorders observed during hospitalizations. These accidents could be prevented by a dose adjustment

for drugs cleared by the kidneys. The objective of this study is to evaluate the dose adjustment of antibiotics according to creatinin clearance.

**Materials and method:** This is a prospective study over a period of 5 months in the urology department (female side) of the hospital Sahloul. The creatinin clearance is calculated in all patients treated with antibiotics according to the Cockcroft Gault formula if age is below 65 years and according to "Modification of Diet in Renal Disease (MDRD)" if age is over 65 years. In patients with Clearance<80 ml / min, the theoretical doses are calculated by reference to the summary of product characteristics SCP and the recommendations of various diseases and compared to those prescribed.

**Results:** Of the 216 patients, 18% have a reduced clearance. Of these, 77% have values below 30ml/min. Ofloxacin, ciprofloxacin and cefotaxime are the most commonly used antibiotics. An inadequate adaptation was observed in 42% of cases with 37.5% of patients overdosed and 63.5% under dosed. In the service, when clearance is decreased, the dose adjustment of ciprofloxacin and ofloxacin is routinely achieved by reducing 50% of the dose, whereas, according to the SPC, the adjustment should be made while taking into consideration the value of creatinin clearance. All adaptations of cefotaxim were under dosed. Indeed, it is recommended to reduce the dose to 50% only when the Clearance <5ml/min.

**Conclusion:** Our study showed a gap between theoretical dosages adapted to creatinin clearance and those prescribed. An adjustment respectful of recommendations is necessary in order to avoid any risk of therapeutic failure or a possible toxicity.

**P 202 Xanthogranulomatous pyelonephritis in children: A 21-case series**

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**Introduction and Objective:** Xanthogranulomatous pyelonephritis (XGP) is a non-specific chronic inflammation of the kidney which is extremely rare in children. Chronic renal infection usually associated to urolithiasis is the main cause. Throughout our experience of XGP in children, were studied diagnosis, differential, surgical treatment and outcome.

**Material and Methods:** We reviewed retrospectively analysis of clinical records of 21 children who underwent nephrectomy for XGP among 97 nephrectomises performed in children (22%), between 1985 and 2010.

**Results:** The mean age was 8 years. The commonest clinical presentation was lumbar pain (76%), lumbar mass (52%) and fever (47,6%). Urine culture identified bacteria in 85.7% of cases of which 50% are Proteus

mirabilis. IVP and isotopic studies showed a non-functioning kidney in 20 cases (95%) and renal stones in 18 cases (85%). Echographic studies showed enlarged kidneys with decrease in renal parenchyma thickness in 70% and a shrunk kidney in 30%. Seven computed tomography scan performed did not add any further information. Diagnosis was made post-operatively in all cases by pathology examination. Treatment consisted of antibiotic therapy followed by nephrectomy. Only one case of a focal XGP underwent conservative treatment. One infant died post-operatively with septicemia and acute renal failure complications.

**Conclusion:** The clinical features of the XGP remain not specific. The definitive diagnosis can only be confirmed by histological examination. Total nephrectomy is the treatment of choice for the diffuse form, whereas partial nephrectomy may be curative for focal disease if the remaining kidney is functional.

**P 203 Emphysematous pyelonephritis: A 12-case series**

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**Introduction and Objective:** Emphysematous pyelonephritis (EPN) is a severe, acute necrotizing infection with formation of gas in the collecting system, renal parenchyma and perirenal tissues. It is a life-threatening condition with a high mortality rate. We studied herein its diagnosis, differential diagnosis, surgical treatment and its outcome.

**Material and Methods:** We reviewed retrospectively analysis of clinical records of 12 patients, treated for emphysematous pyelonephritis, between 1985 and 2011.

**Results:** The mean age was 46 years with female predominance (sex ratio 0.22). All patients are diabetics. Infections of the upper urinary tract were present in 9 cases. Renal stones are seen in 10 cases. The commonest clinical presentation was lumbar pain (100%), dysuria (85%). Urine culture identified *Klebsiella pneumoniae* in 58% of cases, *Escherichia Coli*, *Proteus Mirabilis* and *Candida Albicans* in each case respectively. Plan X-ray film realized in all cases, showed renal stones in 83% of cases. Computed tomography scan confirmed diagnosis. It showed gas in the collecting system, renal parenchyma, and it performed VAN classification: type I (7cas) et de type II (5 cas). Treatment consisted of antibiotic therapy followed by nephrectomy for 6 patients. Only one of this group died. The second group was treated by ureteral stent. 4 Patients died from this group.

**Conclusion:** EPN is a rare necrotizing infection with high mortality and morbidity. Uncontrolled diabetes and urinary tract obstruction play important role in the development of EPN. CT is the modality of choice in the

diagnosis and classification of EPN. Treatment options are based on antibiotics, percutaneous drainage and relief of obstruction if present. However surgical intervention should not be delayed in patients who do not substantially improve on medical treatment or who have signs of organ failure.

**P 204 Epidemiological profile of urinary tract infection in pediatric ward: Experience of a Pediatric Service of the University Hospital of Batna**

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**Introduction:** Urinary tract infection (UTI) is one of the most common infectious attacks in children, Pediatrics significant problem for many reasons: its incidence, the polymorphism of clinical manifestations, its potential severity (renal scarring), the possibility of revealing a uropathy.

**Objective:** The aim of our study is to evaluate the incidence, morbidity and long-term acute (hypertension, renal failure), the proportion of bacterial strains involved and how they supported.

**Materials and methods:** We conducted a retrospective study done on the records of patients hospitalized in pediatric ward from 01-01-2009 until 31-12-2009 130 patients were the subject of this study.

**Results:** The incidence was 4.64%. Frequently females (sex ratio 0.68). The age group most affected is from 30 days to 05 years (range 30 d and 15). Fever was noted in 110 patients, 44 patients complained of urinary symptoms. The gross hematuria was observed in 07 patients. Leukocytosis was present in 84.62% of cases; an ESR above 30 in the first hour in 34.61% cases. CRP was positive in 65.38% of patients. *E coli* was isolated in 22.38% cases, followed in descending order of *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Proteus*, *Enterococcus*. Ultrasound renal disease 17.16% (7.58% urétérohydronephrose). The UCR pathological in 9.70%(6% RVU). Pathological IVU 5.22% (3% urétérohydronephrose)

**Conclusion:** This study confirmed the frequency of UTI in a pediatric setting. However, great efforts are still needed to better support her. Better knowledge of bacteriology Local: prevalence of germs, sero-typing, with ATB resistance;

The long-term prophylactic treatment of UI also remains to be defined

**P 205 Childhood meningitis: Experience of the pediatric department for a year**

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**Introduction:** Meningitis is one of concern in Pediatric

Infectious Diseases icts with impact, the Epidemiological Profile, ict severity in the short and long term especially if it is Caused by bacteria, and especially the interest of her proper care.

**Objective:** Evaluate the epidemiology, bacteriology, etiology of meningitis and How They support and Their Future.

**Material and methods:** A retrospective study of records of patients hospitalized in the Pediatric University Hospital DURING 2010 BATNA. 70 Patients were the subject of this study.

**Results:** Both sexes are affected with a male predominance. The Age Group Most Affected is 30 days to 05 years 55.71% (range of 30 and 15).

A marked Increase in incidence Between April and August (61 boxes)

Fever was noted in 100% of our patients, 32 patients complained of headache. The neck stiffness was noted in 13 patients, 02 patients presented seizures.

Cytological CSF study objectified That HAS 57% of patients had a number of elements between 10 and 500 cells / mm<sup>3</sup> with presence of neutrophils and lymphocytes in 40.4%.

The hypoglycorrhachia WAS present in 55.7% of cells, the hyperalbuminorrhachie in 31.4% of boxes. Leukocytosis WAS present in 63.33% cells, leukopenia in boxes 26.66%. 67% Of Our Patients had a positive CRP, 61.8% Had an ESR.

**Conclusion:** This study confirmed the frequency of meningitis in children and the preponderance of the viral origin which corresponds to literature.

#### P 206 Streptococcal central nervous system's infections : About 7 localisations

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**Introduction:** *Streptococcus pneumoniae* is an important pathogen which is known to cause meningitis, while other streptococci are rarely incriminated in central nervous system (SNC) infections.

**Patients and methods:** The present report describes five patients (3 men and 2 women) hospitalized in our internal medicine department who developed streptococcal (SNC) infections.

**Results:** Mean age was 57 years (range: 33 – 79). Their past medical histories showed respectively diabetes, lung tumor, nasopharyngeal tumor, Crohn's disease and epilepsy. The infections were as follows: meningitis in 3

case, an epidural abscess in 2 cases, a brain abscess in one case and a cerebellar abscess in one case. The isolated pathogens from blood culture, cerebrospinal fluid and other biological samples were respectively: *Streptococcus B* (2 cases), *Streptococcus A*, *Streptococcus bovis* and *Streptococcus oralis*. All patients were treated by appropriate antibiotics but the outcome was favorable in only three patients, the two others died of a respiratory distress.

**Conclusion:** *Streptococcus* is a very common pathogen, however it may involve severe infections particularly those of SNC. Prognosis depends on age and on the constitutional susceptibility of the patient.

#### P 207 Group A Streptococcal meningitis: report of two cases

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**Introduction:** The recent increase of invasive Group A streptococcal (GAS) disease is well documented. However, acute bacterial meningitis caused by this pathogen remains uncommon. We report two cases of GAS meningitides observed in the Pediatric department of the tertiary university hospital of Sahloul, Tunisia.

**Cases Report:** There were two children, 9 months and 14 years of age, respectively, with meningitis. The cerebrospinal fluid (CSF) examination revealed high white blood counts (> 500/mm<sup>3</sup>) in each patient and Gram stained smear showed Gram positive cocci in one of them. Group A-, hemolytic streptococci were isolated from CSF in both cases. Also we had revealed in both children an associated risk factor of invasive GAS infection. The 14 years old boy, had a history of community acquired infection before the onset of GAS infection: he had a previous acute otitis. The other case's meningitis was secondary to cranial surgery: the 9 months infant had meningomyelocele, and developed a hydrocephalus which was drained with ventriculoperitoneal shunt. Both patients received antibiotic regimen including 3<sup>rd</sup> generation cephalosporin (ceftriaxone) before defined bacterial identification and the strains were susceptible to the chosen antibiotic.

**Conclusion:** GAS meningitis remains an unusual manifestation of invasive GAS disease in children. It usually occurs in association with some other foci of infection, most commonly otitis. In an era of resurgence of invasive infection caused by GAS, clinicians should always consider GAS in all cases of childhood meningitis.



**P 208 Meningococcal meningitis serogroup Y about a case report**

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**Introduction:** Neisseria meningitidis (N.M) is the etiologic agent of outbreaks, epidemics, and sporadic cases of meningitis or meningococemia. Such infections have high illness and death rates, especially in children <5 years of age and adolescents. N.M serogroups A, B, C, Y, and W135 cause most meningococcal disease worldwide. In Tunisia N. M serogroup B was most frequent serogroup but serogroup Y was much less common and mainly affects the elderly. We report a case of N.M serogroup Y to identify the spectrum of clinical feature, approaches to management, and outcome in patients with N.M serogroup Y

**Case report:** A 4 year-old-child was admitted to our pediatric intensive care unit for fever, diarrhea and vomiting since 4 days. On physical examination, he was in shock and febrile. Laboratory test showed a C-reactive protein at 228 mg/l and white cell count at 21000/mm<sup>3</sup> (68% PN). Lumbar puncture was in favor of bacterial meningitis (leukocytes= 6500/mm<sup>3</sup> (80% polymorphonuclear); H< 1, Alb= 0,41 g/L; Glu= 1,7 mmol/L,. Organisms were not found on gram-stained smear films or by culture of CSF. Initial treatment included a fluid resuscitation, antibiotherapy with cefotaxim 300 mg/kg/day and vancomycine 60 mg/Kg/day as it was not possible to eliminate pneumococcal meningitis. Four days later, the blood culture was positive for N. M serogroup Y. vancomycine was stopped and the dose of cefotaxim was reduced to 200mg/Kg/d. At 7th day of treatment the infant developed a secondary septic arthritis at the left hip and elbow then in the left shoulder on 11th of antibiotherapy. A puncture of the left hip and an arthrotomy of the left shoulder with a synovial biopsy confirmed the diagnoses. Cefotaxime and vancomycine were replaced by rifampycine and targocid. Posttherapy, the patient had complete resolution of his symptoms and normalization of laboratory studies.

**Conclusion:** Originality of our observation is double, on the one hand the rarity of this organism in our country and other unusual manifestation to share the type of septic arthritis secondary with multiple localization.

**P 209 Bacterial meningitis prior to the reintroduction of Haemophilus influenzae vaccine in Tunisia**

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**Introduction:** Childhood acute bacterial meningitis is an important cause of death and long-term neurological disability. The objective of this study was to describe the epidemiological, bacteriological characteristics and the outcome factors for children hospitalized with acute bacterial meningitis, prior to the reintroduction of Haemophilus influenzae vaccine in Tunisia (April 2011).  
**Methods:** The study was retrospective, conducted at the Paediatrics, Emergency and intensive care Department of Hedi Chaker Hospital. All patients aged 1 month -15 years admitted between January 2005 to April 2011, with clinical evidence of meningitis and cerebrospinal fluid (CSF) cultured, were included.

**Results:** 25 children met the inclusion criteria. The sex ratio was 1.27. The mean age is 44 months. All the children didn't receive neither anti-Hib vaccine nor anti-pneumococcal vaccine. The major symptoms at admission were: continuing fever noted in all cases, vomiting (10 cases), hypotonia (4 cases), seizures (3 cases). Positive cultures in CSF were less frequent in pretreated patients (9 cases). Haemophilus influenza was the most frequent cause of purulent meningitis (5 cases), streptococcus pneumoniae the second most frequent (4 cases), 2 patients were admitted for meningococcal purpura, in the intensive care unit and died within 24 hours. 5 developed neurological complications such as empyemas and seizures and infectious complications such as arthritis. 2 patients presented perceptible deafness.

**Conclusion:** Our study showed that the predominant pathogens of childhood bacterial meningitis were Hib and SP. Early diagnosis may prevent neurological sequelae and deafness, depending on effective antibiotics for a better outcome.

**P 210 Epidemiological, clinical and progressive profiles of pyogenic meningitis in the region of nabeul**

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**Introduction :** Bacterial meningitis is a major public health problem by their frequency and severity. Through a retrospective study of cases of bacterial meningitis occurred among adults admitted to a Tunisian regional hospital, we propose to analyze the characteristics of these infections and to identify prognostic factors.

**Results:** Forty-one patients (30 men and 11 women) with a mean age of 35.8 years were hospitalized during the study period (5 years). The average time of hospitalization was 2.32 days. Infectious syndrome and meningeal syndrome were not constant (92% and 61.4%

of cases). On admission, 42% of patients had impaired consciousness. Six patients were admitted to an array of purpura fulminans.

The average value of leukocytorrhachie was 9473.6 of éléments/mm<sup>3</sup>. A high protein level and hypoglycorrhachia were found in respectively 94.4% and 91.8% of cases. Direct examination of CSF and soluble antigen detection are positive in respectively 53.8% and 56% of cases. A germ was isolated in CSF in 73.2% of cases and in 3.4% of cases in the blood. Isolated germs were a *Meningococcus* in 22% of cases, a *Pneumococcus* in 16% of cases, a *Haemophilus Influenzae*, *Klebsiella Pneumoniae* and *Enterococcus Faecium* in one case respectively. Sensitivity to main antibiotics of isolated germs stays constant. A strain of *S. pneumoniae* was resistant to penicillin (among the three cases where the CSF culture was positive). An entrance door was identified in 46.34% of cases (ENT causes in 24.4 % and brain injury in 3 patients). The average duration of antibiotic therapy was 10.9 days. Corticosteroid therapy was prescribed in 3 patients. The outcome was favorable in 37 patients (90%). Four patients died. Factors correlated with poor prognosis found in our study included older age, presence of focal neurological signs, altered state of consciousness and the presence of thrombocytopenia or acute renal failure.

**Conclusion:** Despite progress in their care, acute bacterial meningitis remains a major cause of morbidity and mortality.

#### P 211 Probabilistic antibiotherapy in infections of central nervous system in adults: 50 cases.

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**Introduction:** The infection of central nervous system (CNS) remains a serious diagnostic and therapeutic emergency that requires good epidemiological knowledge for appropriate diagnostic and therapeutic care. The aim of this study is to clarify the epidemiological, clinical, biological, bacteriological, curative and preventive profiles of our patients to better focus and clarify the first-line antibiotherapy the most suitable to our region.

**Methods:** We present a retrospective study of 50 patients conducted both in resuscitation and Internal Medicine Department of Mohamed Tahar Maamouri Hospital of Nabeul for a period of 5 years.

**Results:** CNS infections are uncommon in our department (7.3 per 1000 hospitalizations). Our population consisted of 38 men (76%) and 12 women (24%), mean age 34.8 years. The etiologies were: bacterial meningitis in 41 cases (including 2

tuberculosis), viral meningitis (5 cases), viral encephalitis (2 cases including 1 rabies), brain abscess and tuberculoma in one case respectively. The diagnosis was presumptive in 54% of cases. It was bacteriologically confirmed in 22 patients with pyogenic meningitis. The diagnosis of rabies encephalitis was confirmed histologically. The germs isolated were a meningococcus in 22% of cases, *Pneumococcus* in 16% of cases, *Haemophilus Influenzae*, *Klebsiella Pneumoniae* and *Enterococcus Faecium* in one case respectively. A *Pneumococcal* strain was resistant to penicillin (among the three cases where the CSF culture was positive). The empirical antibiotic treatment was a cephalosporin 3<sup>rd</sup> generation in 34 patients. Factors correlated with poor prognosis found in our study included older age, presence of focal neurological signs, altered level of consciousness and the presence of thrombocytopenia or acute renal failure.

**Conclusion:** The epidemiology of CNS infections is dominated by meningococcal and pneumococcal meningitis resistant to penicillin one in three cases. Probabilistic antibiotherapy based on a cephalosporin 3<sup>rd</sup> generation is therefore recommended for any CNS infection in our region.

#### P 212 MRI findings in pituitary abscess

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**Introduction:** A pituitary abscess is a rare entity that can present with a dramatic course suggestive of a central nervous system infection and a pituitary mass, but more often mimics an indolent and routine mass lesion of the pituitary area. The advent and MR modalities have improved the sensitivity with which pituitary lesions are detected, and have helped to verify the diagnosis of pituitary abscess.

**Materials and methods:** Case1: A 28-year-old man, holder of pulmonary tuberculosis, presented headache and polyuria-polydipsia syndrome. A cerebral MRI was performed.

Case 2: A 65-year-old was hospitalized for disorders of consciousness and polyuria-polydipsia syndrome. A pituitary MRI was performed.

**Results:** Case 1: the MRI showed intrasellar lesion with high-intensity signal on T2 weighted sequences. This lesion was heterogenous with a slight peripheral-ring enhancement. There were also many intracerebral lesions and meningeal enhancement. The biopsy confirmed the diagnostic of tuberculosis abscess.

Case2: MRI showed a large mass arising from the pituitary fossa and extending into the suprasellar cistern. The lesion was heterogenous, with high intensity on T1 and T2 weighted sequences and was not enhanced after gadolinium injection. After surgery, histopathologic

findings confirmed the diagnosis of pyogenic abscess.

**Conclusion:** The diagnosis of pituitary abscess remains difficult, even with the help of MRI. Diagnosis often occurs at surgery, which is the best treatment, allowing bacteriological examination and effective postoperative medical treatment.

**P 213 Oculo-orbital complications of sinusitis: About 27 cases.**

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**Introduction:** Oculo-orbital complications (OOC) of sinusitis are rare but serious. They require early treatment to preserve the functional and vital prognosis. Objectives: To describe the clinical presentations and methods of management of OOC of acute sinusitis.

**Materials and methods:** Retrospective study over 11 years [2000-2011] including 29 patients with Oculo-orbital complications of acute sinusitis in the ENT department of Rabta. This diagnosis was made clinically and confirmed by a CT scan of facial bones in all cases.

**Results:** The average age of our patients was 15.75 years with a sex ratio of 3,8. The mean time from injury was 7.68 days. The reason for consultation was an orbital inflammatory swelling. Rhinological signs were absent in 30% of cases. Physical examination found an orbital cellulitis in all cases; proptosis (14 cases), oculomotor disorders (16 cases), decreased visual acuity (3 cases) and keratitis (1 case). At CT, it was an ethmoid-maxillary sinusitis (20 cases), an ethmoid sinusitis (6 cases), a frontal sinusitis (3 cases). Abscess was found in 23 cases. Surgical draining externally was carried out in 22 cases, the bacteriological sampling concluded streptococcus (2 cases), negative in 8 cases. A broad-spectrum antibiotics had been introduced in all our patients for 32 days on average and corticosteroids in flash in 2 cases. The outcome was favorable in 28 cases. Clinical worsening was reported in one case. It was a complicated aspergillus sinusitis progressed well with amphotericin B.

**Conclusion:** the oculo-orbital extension is a serious complication of sinusitis. Diagnosis is clinical and confirmed by computed tomography. Early and appropriate antibiotic therapy that may be associated with surgical drainage is necessary. The best treatment is prevention by early and efficient treatment of sinusitis.

**P 214 Pelvic Actinomycosis: A seven cases report**

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**Introduction:** Pelvic actinomycosis is a chronic granulomatous suppurated disease caused by

actinomyces israeli. Its incidence is increasing because of the frequent use of intrauterine contraceptive devices. The objectives of this manuscript are to study the clinical presentations, the means of diagnosis and the management of pelvic actinomycosis.

**Patients and methods:** It is a retrospective study from 1<sup>st</sup>/01/1990 to 31/12/2009 in our department of gynecology and obstetrics. We collected all the cases of women admitted for genital infection with identification of actinomyces Israeli in the biological samples. Seven patients had actinomycosis during this period.

**Results:** The mean age of the patients was 38 years with extremes from 30 to 44 years. All women had intra uterine devices as contraceptive tool. All patients suffered from abdominal pain (acute and/or chronic). Fever was found in only one case. Diagnosis was not made before surgery. It was confirmed after surgery in all cases by histo-pathological examination. One patient was pregnant at diagnosis, but she presented a miscarriage after surgery. Treatment was surgical in all cases, relayed by antibiotics for two months. The follow-up was uneventful in all cases.

**Conclusions:** Preoperative diagnosis of pelvic actinomycosis is difficult. It must be suspected if the patient has a history of contraception using intra uterine devices. Ultrasound or Computed tomography guided core needle biopsy or aspiration of the abscess may help a conservative management. Treatment is based on antibiotics, mainly Penicillins. Surgery is indicated for the evacuation of large abscesses and for the resistant cases.

**P 215 Actinomycosis of the maxillary sinus**

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**Introduction:** Actinomycosis is an indolent, suppurative, and granulomatous infection caused by a gram-positive anaerobic bacterium of the genus Actinomyces. Over 50% of the cases occur in the head and neck region, but reports that involve the nose and sinuses are rare. The purpose of this study is to characterize clinical and radiological features and treatment aspects of maxillary sinus actinomycosis.

**Methods:** Throw a case of actinomycosis presenting as a infection of the maxillary sinus we tried to characterize clinical and radiological features and treatment aspects of maxillary sinus actinomycosis.

**Results:** We report a case of a 30-year-old man, without past medical history. The present illness started since four months before admission in hospital with a dental infection unresponsive to antibiotics. There were no sign like, fever, weight loss or night sweats and no rhinologic signs either. Examination of the oral cavity objectified a



poor dental hygiene with infection of the 26, 27 and 28. Imaging study (CT scan with contrast medium enhancement) was performed and showed an opacification in the left maxillary sinus with destructions of its walls, a sequestered bone next to the 26, 27 and 28 and an oroantral fistula. Laboratory studies, including complete blood count, biochemistry profile and Mantoux test, were all within normal limits. The primary diagnosis of tuberculosis was reserved. A left middle meatal antrostomy with multiple biopsies was done. Pathological examination concluded to a maxillary osteitis related to an infection involving actinomycosis. Long-lasting penicillin M allowed complete cure of the symptoms.

**Conclusion:** In a patient with unilateral chronic maxillary sinusitis unresponsive to antibiotics, actinomycotic sinusitis as well as fungal sinusitis should be suspected. Imaging studies help to define the extent of the disease. Surgical removal of the involved tissues and the restoration of sinus ventilation seem to be important factors for treating the disease. Definite diagnosis relies on positive cultures and biopsy showing the bacteria.

#### **P 216 Acute mastoiditis in children : Clinical and radiological findings**

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**Introduction:** Acute mastoiditis is the most common suppurative complication of acute otitis media in children. The purpose of our work is to review various clinical and radiological features.

**Patients and methods:** Retrospective review of the medical records of children with mastoiditis from January 2005 through december 2011

**Results:** We collected 10 cases (6 girls and 4 boys). The average age is 6 years with extremes ranging from 7 months to 10 years.

The clinical manifestations are fever in 10 cases, retroauricular tumefaction in 8 cases and seizure in one case.

The computed tomography confirmed the diagnosis of mastoiditis and revealed complications in 5 patients: a subcutaneous collection in 3 cases, cranial osteitis in one case and cerebral venous thrombosis in one case.

Intravenous antibiotics are administrated in all cases for an average of 21 days. Surgical treatment was performed in 4 cases. The outcome was favorable in all cases.

**Conclusion:** Mastoiditis requires prompt diagnosis and

computed tomography should be performed early in the course of the disease to classify the mastoiditis and to detect intracranial complications.

#### **P 217 Necrotizing external otitis**

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**Introduction:** The purpose of our work is to study the clinical, diagnostic and evolutionary otitis external Necrotizing and expose the terms of support of this pathology.

**Patients and methods:** This is a retrospective study conducted over a period of 19 years (between 1993 and 2011) about 34 patients treated for necrotizing external otitis.

**Results:** The average age of patients was 60.3 years. The sex ratio was equal to 1. All patients were diabetic. The main reason for consultation was otalgia(100%) associated with a purulent otorrhea in 21 cases and facial palsy in 6 cases.

Otoscope examination showed a size reduced conduit in all cases associated with a polyp in 5 cases. Peripheral facial paralysis was observed in 6 cases. Bacteriological study had isolated a *Pseudomonas aeruginosa* in 18 cases and culture was negative in 16 cases. Biologically, sedimentation rate (VS) was accelerated in 26 cases. Computed Tomography shows a thickening of the soft tissues of the external auditory meatus and lesions of osteitis with lysis of the cortical tympanic bones. Scintigraphy with technetium-99 m, carried out in 6cases, showed an uptake in the temporal bone. Antibiotic treatment was administered parenterally for a period of four weeks with a third generation cephalosporin (ceftazidime) associated to a fluoroquinolone (ciprofloxacin). A relay oral was undertaken during an average of 4 weeks. Daily local cares, with calibration of the duct were practical. Hyperbaric oxygen therapy was performed in 5 cases. Diabetes control was conducted in collaboration with endocrinologists. Our patients were monitored based on clinical data (disappearance of the otalgia, depletion of otorrhea, improving the local state with expansion of the conduit), biological (sedimentation rate) and radiological (CT of the rocks).

**Conclusion:** Necrotizing external otitis is a severe infection. His prognosis has markedly improved since the advent of active antibiotics on *P. aeruginosa*.

The diagnosis must be rapid and its treatment should be extended.

**P 218 Cervical cellulitis: clinical presentations and treatment modalities**

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**Introduction:** cervical cellulitis is an extensive infection of the neck. It's considered as a life threatening therapeutic emergency.

**Objectives:** describe the clinical presentations of cervical cellulitis and discuss its therapeutic modalities.

**Materials and methods:** a retrospective study over 4 years [2008-2011]. That included 43 patients hospitalized in our ENT department for cervical cellulitis.

**Results:** The average age was 29.43 years. The sex ratio was 2.07. 5 patients were diabetic and two women were pregnant. The infection entrances were a dental caries in 19 cases and an oro-pharyngeal inflammation in 6 cases. Previous treatment with anti inflammatories and antibiotic was respectively reported by 13 and 12 patients. Mean consultation delay was 3 days (1-6 days). The main complains were inflammatory neck mass in 41 patients, odynophagia in 2 patients. Fever and trismus were found respectively in 24 and 15 cases.

CT scann, performed in 27 patients, showed an aspect of necrotizing fasciitis in 2 patients, cervico-mediastinal gangrenous cellulitis in 2 patients, a laterocervical collection in 20 patients, submental collection in 1 case, and a péripharyngeal one in 2 cases. Intravenous antibiotic therapy was initiated as monotherapy in 5 cases, dual and triple therapy respectively in 12 and in 26 cases. The average duration of intra-venous treatment was 11.67 days. Surgical drainage was performed externally in 21 patients and through a vestibular approach in 6 patients. The outcome was favorable in 42 cases. A patient with a gangrenous cervico-mediastinal cellulitis died from septic shock.

**Conclusion:** Cervical cellulitis is unpredictable. If surgery is evident in the gangrenous forms, it depends, in the phlegmonous ones, on the patient condition, imaging data and evolution under antibiotherapy.

**P 219 Chronic cervical lymphadenitis due to cat scratch disease**

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**Introduction:** The cat scratch disease is a zoonosis

caused by Bartonella Henselae. The typical clinical manifestation of Bartonella infections usually follows a typical benign self-limited course. Nevertheless, a variety of unusual clinical manifestations and confusing imaging features can lead to misinterpretations and render the disease a diagnostic dispute. Routine laboratory tests exhibit varying reported sensitivity and are usually unhelpful in diagnosis, as serology fails in terms of specificity and/or sensitivity.

**Methods:** We report a case of a cervical lymph node location of cat scratch disease to describe its clinical, radiological, and therapeutic aspects.

**Results:** : An 11-year-old boy, with history of kitten contact, presented with painful right latero cervical swelling, which had lasted for three weeks without any other associated symptoms. The examination found only two cervical swellings, a right pre laryngeal one, which was 2 cm of diameter, and a left jugulo carotidien one, which was 3cm of diameter, both were firm, removable, and painful without inflammatory signs. Laboratory work up showed normal hemoglobin and white blood cell count. Liver enzymes were normal and C-reactive protein levels were normal. Serological tests were used to exclude *Chlamydia trachomatis*, EBV, CMV. Chest radiograph showed no particular findings. Ultrasonography showed several bilateral cervical lymph nodes, with necrotic center. The Mantoux test was negative. Adenoidectomy were carried out. Histological examination found adenitis related to cat scratch disease. The patient was treated by macrolide (azithromycin) and had favorable evolution after a month.

**Conclusion :** The cat scratch disease is a rare cause of chronic cervical lymphadenopathy in children. The clinical and radiological features are not specific. The combination of serology and PCR, if available, appears to have the best diagnostic yield, allowing a definitive diagnosis in most cases avoiding any invasive procedure.

**P 220 Acute otitis media caused by *Corynebacterium auris* : a case report**

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**Introduction:** *Corynebacterium auris* is a part of the normal flora of the ear canal. It was reported from ear infections in pediatric patients and causes acute or chronic otitis media.

We report a case of acute otitis media due to *C. auris* diagnosed at the microbiological laboratory of the children's hospital of Tunis.

**Observation:** A five-year old child, with a history of recurrent otitis media, consults in January 2012 at the

local dispensary for earache without fever. The diagnostic established was acute otitis media and the patient received amoxicillin+cavulanic acid. Because of the inefficacy of the treatment, the child was addressed to our laboratory in February 2012 where an ear sample was taken. The culture of this specimen was positive. Identification was performed using conventional methods (Gram staining and biochemical tests) and antibiotic sensitivity was determined according to the CA-SFM guidelines. The principal antimicrobial agents tested were: penicillin G, amoxicilline, amoxicilline-clavulanic acid, aminosids, macrolides, glycopeptides, fosfomicin, ciprofloxacin and tetracycline.

Ear specimen culture was pure with a single bacterium species. The micro-organism isolated was identified as *Corynebacterium auris*. It is an aero-anaerobic Gram positive bacillus; pleomorphic, non spore-forming. Identification was based on the presence of a catalase, a Dnase and a Camp-test negative. It belongs to the group ANF-1 of *Corynebacterium* which included also *Turicella otitidis* and *Corynebacterium afermentans*. *Corynebacterium auris* was sensitive to all  $\beta$ -lactam antibiotics tested, aminosids and glycopeptides however it was like the other *Corynebacterium* resistant to fosfomicin. Then it has an acquired resistance to erythromycin. The patient received an antimicrobial association of amoxicillin and lincomycin with a good evolution.

**Conclusion:** Clinical interpretation of *Corynebacterium auris* when isolated from ear specimen must always be done with caution because even though this bacterium is a commensally of the ear canal and may contaminate any unprotected taking. Its role in middle ear otitis should not be neglected.

#### P 221 Molecular Characterization of group A Streptococcus causing paediatric pharyngitis in Sfax

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**Introduction:** Group A Streptococcus (GAS) is responsible for non invasive infections such as pharyngitis and invasive infections. The M protein is a major virulence factor. *Emm* sequence typing is used for the molecular typing of GAS in addition to other markers such as pulsed-field gel electrophoresis (PFGE). *emm* type surveillance enhances understanding of the epidemiology of pharyngitis and support the formulation of multivalent vaccines.

We designed this study to investigate the molecular epidemiology of GAS isolated from children with pharyngitis.

**Materials and methods:** 138 GAS isolates collected

between June 2007 to May 2008 at the laboratory of Microbiology of Sfax (Tunisia) were analysed by *emm* sequence typing, PFGE and antimicrobial susceptibility testing. These isolates were recovered from throat swab in children aged from 2–10 years.

**Results:** All of these strains were susceptible to  $\beta$  lactams, rifampin, fluoroquinolone, pristinamycin, vancomycin and teicoplanin. No high level of resistance to gentamicin was found. 59.4% were resistant to tetracycline, 2.2% were resistant to erythromycin and 2.2% were resistant to chloramphenicol. 19 different *emm* types were detected. The most frequent were *emm22* (44.9%) followed by *emm4* (16.7%), *emm6* (6.5%) and *emm1* (5.8%). The tetracycline resistant strains belonged to 15 distinct *emm* types. Among of them, *emm22* was the most prevalent type (67.1%). However *emm4* was the most frequent type among tetracycline susceptible isolates. 25 PFGE patterns were identified. The combination of *emm* type, PFGE pattern and antibiotic resistance showed that two major clones (*emm22*/PFGE pattern 1/tetracycline resistance and *emm4*/PFGE pattern 2/tetracycline susceptible) were predominated (37.2% and 11.5% respectively).

**Conclusion:** Our study showed that two cluster of GAS was responsible of about one half of pharyngitis in children. The survey of GAS *emm* type distribution is necessary for providing essential information for the development of multivalent M-type vaccine. This vaccine formulation would target the majority of non invasive especially pharyngitis (*emm22*, *emm4* in our study) and invasive causing isolates.

#### P 222 Prevalence of bacterial pathogens in genital specimens among infertile patients, Sfax, Tunisia.

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**Introduction:** We aimed to determine the prevalence of *Chlamydia trachomatis*, *Neisseria gonorrhoeae* and urogenital mycoplasmas among infertile patients.

**Material and methods:** Our study was retrospective and included infertile patients attending the laboratory of microbiology University Hospital Habib Bourguiba Sfax for microbiological investigation from November 2010 to January 2012. For men, semen and urethral samples were collected. For women, vaginal and endocervical swabs were obtained. Each sample was treated for standard bacteriological testing. *Mycoplasma hominis*(Mh) and *Ureaplasma urealyticum*(Uu) were detected using the 'Mycoplasma IST2 kit(bioMérieux®). *Chlamydia trachomatis*(Ct) and *Neisseria gonorrhoeae*(Ng) were detected by automated PCR



using Cobas Amplicor (Roche®). Data were analysed using SPSS.

**Results:** Among the 300 patients included, 114 (38%) patients were male with an average age of 37.2 years and 186 (62%) were female with an average age of 32.3 years. Among women, primary and secondary infertility were observed respectively in 124(70.5%) and 52 (29.5%) cases. The cause of infertility was reported in 149 cases, it was uterin in 23(15.4%) cases and tubal in 21(14.1%) cases. Culture was positive in 11 cases: Nine with *Streptococcus B*, one with *Staphylococcus aureus* and one with *Klebsiella pneumoniae*. Yeasts were present in 45 cases (25.1%). *Mh* and *Uu* were detected in 4(2.2%) cases and 41(22.9%) cases respectively. *Ct* PCR and *Ng* PCR were positive respectively for 13(8.3%) and 1(0.6%) patients. *Uu* was detected more frequently in patients with positive *Ct* and *Mh* and was associated with the presence of yeasts. Among men, primary and secondary infertility were observed respectively in 74(81,3%) and 17(18,7%) cases. The cause of infertility was reported in 78 cases, it concern abnormalities in sperm parameters in 48(61.5%) cases. Culture was positive in two cases: one with *Staphylococcus aureus* and one with *Escherichia coli*. *Uu* was detected in 9 (8.7%) semen samples. *Ct* PCR was positive for 7 (8.4%) patients. None was positive for *Mh* or *Ng*.

**Conclusion:** *Ct* and urogenital mycoplasmas appear to be frequent among infertile patients. Thus, they should be systematically detected in these patients.

#### P 223 Epidemiology of *Chlamydia trachomatis* serovars in Tunisia

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**Introduction:** *Chlamydia trachomatis* infections are the most prevalent sexually transmitted bacterial infections in the world. It is currently divided into 19 genotypes. The aim of this study was to genotype *C. trachomatis* strains circulating in Tunisia using an in house developed reverse hybridization method.

**Methods:** One hundred seventy two urethral and endocervical swabs positive for *C. trachomatis* were collected from Tunisian patients in University hospital in Sfax between February 2000 and June 2011. All specimens were subjected to the Cobas Amplicor CT/NG PCR testing. Positive samples were selected for the *ompA* genotyping. The serovar characterization was performed using our in house reverse hybridization method that was developed and validated using 14 *C.*

*trachomatis* reference strains.

**Results:** Among 172 available samples, 138 were positive by *ompA* PCR. Eighty four samples (60.9 %) were collected from men and 54 (39.1 %) from women. Thirty nine patients (28.3 %) consulted for infection and 97 (70.3 %) for infertility. Mixed infections with *N. gonorrhoeae* were detected in 18 cases (13.1 %). All serovars belonging to the D–K urogenital group were detected except the serovar J. One hundred eight samples (78.8 %) were infected with a single serovar. Serovar E was the most frequently detected (90.6 %). Trachoma serovars (A and B) were also detected but associated with other serovars. Serovars C and LGV serovars were not detected in our urogenital samples.

Women were significantly more frequently infected by a single serovar ( $p=0.02$ ). Serovars F and K were observed more frequently in men ( $p<0.05$ ). Serovar E was more frequently detected among patients with infection than infertility ( $p=0.04$ ). Patients infected with *N. gonorrhoeae* were also significantly more frequently infected by mixed infection ( $p=0.04$ ), and by serovars other than E ( $p=0.03$ ).

**Conclusion:** In this study, we reported a high frequency of *C. trachomatis* serovar E and mixed infection. Such data may give help to develop strategies of sexually transmitted diseases control.

#### P 224 Bacteriological profile of male urethritis in Sfax (Tunisia)

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**Introduction:** Urethritis is the most frequent sexually transmitted infection diagnosed in men. It has been classified as gonococcal and non gonococcal for treatment strategies. In developing countries, since microbiological investigations are expensive, patients are treated with antibiotics targeting the most frequent agent. This approach requires an understanding of the most common pathogens of the disease.

Our objective was to determine the prevalence of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Ureaplasma urealyticum* (UU) and *Mycoplasma genitalium* (MG) among men with urethritis in our region.

**Methods:** We conducted a retrospective study including all men presented to the laboratory of microbiology, university hospital of Sfax and CNSS, from 2001 to 2011 for microbiological exploration of urethritis. For each patient, two swabs were obtained for Gram staining and NG culture, one swab served to the detection of UU using Mycoplasma IST kit (Biomérieux®), one swab was eluted in 2SP medium and was subject to CT and

NG PCR (Cobas AmpliCor Roche®) and MG real time PCR. Data were analysed using SPSS.

**Results:** During the 10 years of the study, 449 patients were enrolled. The median of age of patients was 30.4. Men reported having sex with female sex workers in 235 cases (52.3%). Abundant urethral discharge was reported by 204 patients (45.4%). Microscopy showed presence of leucocytes in 92 patients (30.2%). NG, UU, CT and MG were detected in 30.7%, 28.3%, 18.6%, 10% of cases respectively. NG was associated to CT in 26 cases (19.1%) and to UU in 20 cases (14.7%). Patients with NG reported more contamination from female sex workers, and presented urinary symptoms in 82.4%. Among patients with CT infection, 20 (64.5%) had less than 5 leucocytes per field.

**Conclusion:** NG is the most incriminated agent in urethritis and it's often associated to CT and UU. Systematic investigation of these pathogens would help to develop control strategies.

#### P 225 Perihepatitis secondary genital tract infection

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**Introduction:** The Fitz-Hugh and Curtis syndrome is a perihepatitis following a genital infection. It usually occurs in young women but male cases have been reported. Chlamydia trachomatis is the most frequent causal agent.

It is the result of ascending infection from the lower genital tract via the fallopian tubes and paracolic gutters to the subphrenic space where it involves the liver capsule. It may also involve the spleen "perisplenitis", the kidney "perinephritis" or the appendix "periappendicitis". Very rarely infection may spread through the blood stream.

The diagnosis can be suspected on the basis of serology results using either indirect immunofluorescence with live antigens specific for serotype D or K or ELISA.

Diagnosis is formally established with laparoscopy.

**Patients and methods:** We propose a retrospective study of 15 cases of Fitz-Hugh-Curtis syndrome with laparoscopic discovery, over the last five years.

Through this study we will try to identify the etiologic features and analyze therapy and prognosis of this entity.

**Results:** The combination of right upper quadrant pain, fever and pelvic signs should suggest the Fitz-Hugh-Curtis syndrome.

Chlamydial serology was positive in 12 patients. The gonococcus was found in only one patient. The perihepatitis (glissonitis with pseudo-membranes) is frequently associated with adhesions. The peritoneum is inflammatory and there are usually small amounts of liquid.

Specimens are taken for culture. Polymerase chain

reaction will improve the detection of Chlamydia since this germ is very difficult to culture.

Antibiotic treatment with adapted drugs given for sufficient time is effective.

During follow up, seven pregnancies were completed, two ectopic pregnancies and two false spontaneous miscarriages were noted.

**Conclusion:** The improved of future prognosis of fertility is conceived after appropriate and effective antibiotic therapy and the fight against sexually transmitted diseases.

#### P 226 Profile of the causative organisms in the tubo-ovarian abscesses

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**Introduction:** The tubo-ovarian abscess is more common pathology in routine gynecology. It is a challenging health problem by its occurrence in young patients and its socio-economical complications. The objective of this work is to investigate the characteristics of the causative organisms in this disease.

**Patients and Methods:** This is a retrospective study of 40 cases of patients treated for tubo-ovarian abscesses, collected over a 3 years period, ranging from 01/01/2009 to 30/06/2011 in the department of Obstetrics and Gynecology A of the Charles Nicolle Hospital in Tunis.

**Results:** The incidence of tubo-ovarian abscesses was 22%. The average age of our patients was 34 years ranging from 19 to 53 years. 45% of women had an IUD inserted from an average of 5.7 years (range 6 months to 20 years). 5 patients had a history of PID (12.5%) and 3 had a history of recurrent urinary tract infection (7.5%). All women in our study had unprotected sex. 6 patients were diabetic (15%). Intraoperative bacteriological samples have implicated Escherichia coli as the leading causative agent of this disease in our patients. Histological examination confirmed the diagnosis and found a pelvic actinomycosis in one patient.

Isolated Agents	Pourcentage
<i>Escherichia Coli</i>	12.5%
<i>Bacteroides fragilis</i>	5%
<i>Enterobacter cloacae</i>	2.5%
<i>Staphylococcus aureus</i>	5%
<i>Streptococcus B</i>	2.5%

**Conclusion:** The tubo-ovarian abscesses are often a serious complication of pelvic inflammatory disease. There is a change in the profile of the causative agents with a decline of STIs and a progression of commensal bacteria associated with immunosuppression of patients.

**P 227 Endophthalmitis after cataract surgery**

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**Introduction:** Endophthalmitis following routine cataract surgery is a rare but potentially devastating complication resulting in severe visual loss.

**Purpose:** To report the incidence, clinical settings, visual acuity outcomes and potential risk factors of acute-onset endophthalmitis after cataract surgery.

**Materials and methods:** This retrospective study was performed for patients treated for acute endophthalmitis after cataract surgery from January 2001 to December 2011. clinical and microbiologic records, operative technique, intraoperative complications, and visual acuity were reviewed in all patients.

**Results:** A total of 19 eyes developed acute endophthalmitis after cataract surgery (16 patients underwent extracapsular cataract extraction and 3 patients phacoemulsification). The incidence of acute-onset endophthalmitis after cataract surgery was 0.01% for cataract surgeries of all methods. The mean age was 71 years (43- 85 years) with sex ratio of 1.7. Only 2 patients were diabetic. The median time from cataract extraction to endophthalmitis was 6 days (range 1 to 65 days). 12 patients had an intraoperative complication: vitreous loss 11 patients and iris prolapse in one patient. All but 2 patients had symptoms, with ocular pain (11 cases), eyelid edema (9 cases) and blurred vision (8 cases). Initial visual acuity was 1/10 in most patients. Chemosis was noted in 5 patients and hypopyon in 10 patients. Intraocular samples from 5 patients yielded 3 pathogens (*streptococcus metis*, *staphylococcus aureus* and *staphylococcus epidermidis*). Treatments included fortified eyedrops antibiotic and intravenous antibiotic in all patients, systemic steroids in 15 patients and vitrectomy in 1 patient. Visual acuity at 3 months was > 3/10 in only 4 patients. Eye loss was noted in 3 patients.

**Conclusion:** The incidence of acute-onset endophthalmitis after cataract surgery is low (0.01%). Extracapsular cataract extraction technique and the occurrence of intraoperative complications are major risk factors for developing endophthalmitis. The visual outcome after endophthalmitis was generally poor and only 21% of the eyes achieved a final corrected visual acuity > 3/10.

**P 228 Phenotypic characterisation of antibiotics resistance mechanisms in Gram negative rods isolated from the community.**

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**Purpose:** Antibiotic resistance is now a major public health threat. The dissemination of resistance among Gram negative bacteria is increasingly important. The aim of this survey is to characterize the phenotype of resistance to different family of antibiotics and to evaluate the prevalence of resistance to these antibiotics among Gram negative bacilli recovered from community.

**Methods:** Strains of Gram negative bacilli were collected from two laboratories of medical analyses in the region of Béjaïa (Algeria) between October, 2010 and Mai, 2011. These strains were tested toward fluoroquinolones, β-lactamactams and aminoglycosides. The phenotypes of resistance were determined by the screening of production of: ESBL, cephalosporinase and oxacillinase enzymes by DD-test for β-lactamactamines and according to the sensitivity to three molecules of quinolones family and three aminoglycosides.

**Results:** During our study, 423 Gram negative bacilli were collected from medical laboratories analysis. 401 strains were *Enterobacteriaceae*, 18 strains were *Pseudomonas aeruginosa* and only 4 strains were *Acinetobacter baumannii*. Rates of antibiotics resistance in *Enterobacteriaceae* were 26.43% to nalidixic acid, 15.96 % to ciprofloxacin, 8.47 % to the third generation cephalosporins, 5.73% to the fourth generation cephalosporins, 7.48% to gentamycin and none to carbapenem. No resistance is observed in *Pseudomonas aeruginosa* to ceftazidim, to aztreonam, to the fourth generation cephalosporins, carbapenem and colistin. A rate of 11.11% is observed to ciprofloxacin and gentamycin. Finally, 5.55% are resistant to tobramycin and amikacin. Only two strains of *Acinetobacter baumannii* were resistance to imipenem.

**Conclusion:** Increasing importance antibiotics resistance among Gram negative rods in our region gives causes for great concerns.

**P 229 The evolution of multiresistant gram negative bacillus over 5 years in Farhat Hached Hospital in Tunisia**

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Until recently, multiresistant bacteria were only limited to hospitals. However, they are now responsible for community acquired infections; affecting people who have had no contact with the hospital environment. Several mechanisms are associated with these



resistances. The production of betalactamases is however the predominant mechanism and especially the production of extended spectrum betalactamases (ESBL) by enterobacteria which mediate resistance to third generation cephalosporin (3GC). The association of multiple mechanisms of resistance generates multiresistance bacteria such as *Pseudomonas aeruginosa* and *Acinetobacter baumannii*.

**Methods:** The aim of this study was to analyze retrospectively the prevalence of enterobacteriaceae, *Paeruginosa* and *A.baumannii* resistant to 3GC isolated in Farhat Hached Hospital in Sousse over a period of 5 years from 2007 to 2011.

All clinical isolates were identified with biochemical characters. Antimicrobial susceptibilities were determined by disk diffusion on Mueller Hinton agar according to CA-SFM recommendations. Antibiotics analyzed were: 3GC (Ceftazidim).

**Results:** In 2007; 3032 enterobacteria were isolated; 243 of which or 8% were ESBL producers while 3042 were isolated in 2011 of which 411 or 13.5% were ESBL producers. We noticed during our study that urines were the most frequent site of isolation (55.1% in 2007 and 61% in 2011).

In 2007; 317 stains of *Paeruginosa* were isolated, 27 of which (8.5%) were resistant to 3GC while 214 stains were isolated in 2011, of which 34 (15.9%) were resistant to 3GC.

Within a span of time of 5 years; *Paeruginosa* resistant to 3GC were isolated from pus with a percentage of 50%. During our study, we noticed an increase in frequency of *Abaumannii* multiresistant from 69% (42/61) in 2007 to 89.2% (84/94) in 2011.

**Conclusion:** Multiresistant bacteria may causes many problem in hospital such in community that is why we must be more carefully to avoid their emergence.

### P 230 Phenotypic characteristics of Enterobacteria strains isolated from Sidi Bel Abbes's hospital (Algeria).

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**Introduction:** Enterobacteria represent major families of Gram-negative bacteria responsible of serious human infections. Surveillance of antibiotic susceptibility in the hospital is an essential step; it guides the choice of empirical treatment and reduces the selection pressure exerted by antibiotics.

**Methods:** The strains of *Enterobacteriaceae* are isolated from various units in the hospital of Sidi Bel Abbes between october 2009 and may 2010. The susceptibility to 27 antibiotics (18 b-lactams, 4 aminoglycosides, 3 quinolones, colistin and trimethoprim/sulfamethoxazole) were determined by the disk diffusion method in agar

medium, according to CA-SFM. Plasmid isolation and conjugation experiments were carried out using standard methodologies.

**Results:** The study of 140 strains of *Enterobacteriaceae* shows that *Escherichia coli* is ranked first (37.1%) followed by *Klebsiella pneumoniae* (21.4%), *Proteus* spp. (19.3%) and *Enterobacter cloacae* (18.6%). Antibiotic susceptibility revealed the emergence of strains resistant to b-lactam antibiotics and most other classes of antibiotics except the amikacin and imipenem with 96.4% and 95.7% respectively of susceptible strains. The analysis of resistance phenotypes to b-lactam is in favor of a dominance of strains producing extended-spectrum  $\beta$ -lactamase (ESBL) (37.1%), for which several plasmid profiles were detected including a plasmid common with molecular weight greater than 55 kb.

**Conclusion:** Better antibiotic stewardship and infection control are needed to prevent further spread of ESBLs and other forms of resistance in *Enterobacteriaceae* throughout the world.

### P 231 Enterobacteriaceae sensitivity in urine samples

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**Introduction:** Enterobacteriaceae are contracting resistance all over the world. New antibiotics are rare. Patient prognosis and initial antibiotics depends on the sensitivity profile of enterobacteriaceae.

**Aim and method:** We aimed to study this profile on urine samples collected on adult patients hospitalized in our ward between January 2007 and December 2011.

**Results:** 175 patients were hospitalized and managed for 219 documented urinary infections. 80.4% were noted in females. We noted 18 infections in pregnant women (8.2%). They were kidney infection in 79%, cystitis in 17.4% and uro-genital infection in 2.7%. We identified 122 first urinary infection and 97 recurrences (44.3%). *E. coli* was identified in 78.5%, *K. pneumonia* in 15.1% and *P. mirabilis* in 3.2% of cases.

*E. coli* was sensitive to amoxicillin in 29.8%, to cefotaxim in 88.8%, to ertapenem in 98.4%, to imipenem in 99.3%, to gentamicin in 86.7%, to colimicin in 100%, to ofloxacin in 81.7%, to ciprofloxacin in 83.3% and to cotrimoxazol in 54.6%.

*K. pneumoniae* was sensitive to cefotaxim in 45.4%, to ertapenem in 83.3%, to imipenem in 100%, to gentamicin in 54.5%, to colimicin in 100%, to ofloxacin in 37.5%, to ciprofloxacin in 38.7% and to cotrimoxazol in 41.9%.

Resistance was observed with recurrences, after antibiotic contact either by betalactams or fluoroquinolons.

Community acquired urinary infections are almost due to *E. coli* that is yet sensitive to cefalosporins and aminosids. It starts to arbor significant resistance to fluoroquinolons and is still resistant in 45.4% to cotrimoxazol. Recurrences were associated to cystitis (86.8%), *K. pneumonia*, BLSE rods and resistance to fluoroquinolones (p=0.000).

**Conclusion:** Antibiotic use must be oriented by this study and compared with the same work done few years ago (90% sensitivity), fluoroquinolons are in dangerous position.

**P 232 Community-acquired urinary tract infections due to expanded spectrum beta-lactamase producing Enterobacteriaceae (ESBLE)**

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**Introduction and Objectives:** The incidence of uropathogenic ESBLE is increasing more and more. These bacteria begin to cross the limits of the hospital to emerge in the community. Thus their propagation becomes a therapeutic problem. The objective of our study is to specify the epidemiological and therapeutic characteristics of community-acquired urinary tract infections (UTI) due to ESBLE.

**Material and methods:** Retrospective study over three years (2009-2011) covering all uropathogenic ESBLE collected at the department of Infectious Diseases, CHU Hedi Chaker Sfax (Tunisia).

**Results:** Among 43 UTI due to ESBLE, 17 were community-acquired (40%). The average age of these 17 patients was 59 years (21-86). The sex ratio was 0.3. Nine patients were aged over 65 years. Nine patients were diabetic (53%). Ten had a history of recurrent UTI (59%). The notion of prior antibiotic treatment was noted in 10 patients (59%). The clinical presentation was an acute pyelonephritis in all cases, two were bacteremic. The strains isolated were *Escherichia coli* (8 cases), *Klebsiella pneumoniae* (8 cases) and *Enterobacter cloacae* (1 case). Our strains were resistant to gentamicin (70%), nalidixic acid (70%), ciprofloxacin (70%), cotrimoxazole (59%), furans (17%) and amikacin (12%). Most patients (70%) were treated with a carbapenem (imipenem or ertapenem) with a good evolution in all cases.

**Conclusion:** Our study have show a relativity high number of community-acquired UTI due to ESBLE. This invites to establish preventive measures to limit the dissemination of these strains in the community. A control of the selection pressure generated by abusive and irrational prescriptions of some antibiotics is obligatory.

**P 233 Detection of plasmid-mediated céphalosporinases in clinical Enterobacteriaceae**

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β-lactams constitute the most complex antibiotic family and the most important in therapeutic, because of their diversity, potency and relative low toxicity, in the last two decades an alarming increase of resistance to these antibiotics was reported worldwide. The main mechanism of resistance to these agents is enzymatic, such as penicillinases, extended spectrum beta-lactamases (ESBL) and cephalosporinases. In this study we focused on resistance by plasmid-mediated cephalosporinases.

A total of seventy four isolates of Enterobacteriaceae were isolated at the laboratory of Microbiology, at Orthopedic Military Hospital-Staouali-Algiers, during the period of July to December (2010). Among these isolates, twenty four were resistant to third generation cephalosporins (3GC), eighteen of which showed positive synergy test indicating extended spectrum beta-lactamases (ESBL) production. The six remaining isolates were distributed into three *Serratia marcescens*, one *Enterobacter cloacae*, and two *Proteus mirabilis*. The oxacillin test showed that these six isolates are producers of céphalosporinases, including one co-produces an ESBL. Gene transfer by conjugation was positive only for one isolate (*Proteus mirabilis*) with the transfer of the total resistance to AMC, CTX and CRO and an intermediate resistance to FOX. The identification of plasmidic AmpC gene by multiplex PCR revealed that it belongs to CIT group (LAT1, LAT2, LAT3, LAT4, CMY2, CMY3, CMY4, CMY5, CMY6 and BIL1).

The significant rate of acquired resistance to 3GC is an indicative of a selection by inappropriate or excessive use of antibiotics, which at the same time, promotes the spread or emergence of new resistant phenotypes by genetic exchange. The progressively increasing resistance to extended spectrum cephalosporins is a serious cause of concern.

**P 234 CTX-M-15 extended-spectrum  $\beta$ -lactamases in *Enterobacteriaceae* in the intensive care unit of Tlemcen Hospital, Algeria**

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**Objectif:** The emergence of resistance to expanded-spectrum cephalosporins is a major concern. The aim of this study was to detect extended-spectrum  $\beta$ -lactamases (ESBL) in *Enterobacteriaceae* isolates in the intensive care unit (ICU) of Tlemcen hospital in the north-western Algeria.

**Methods:** Antimicrobial susceptibility testing, molecular typing, characterization of ESBL-encoding genes and the genetic environment, conjugation experiments and plasmid analysis were carried out.

**Results:** In all, 28 *Enterobacteriaceae* isolates were isolated from specimens recovered from patients in the ICU and 2 from surfaces of the unit. Of these, 11 isolates (4 *Escherichia coli*, 5 *Klebsiella pneumoniae* and 2 *Enterobacter cloacae*) produced ESBL of the CTX-M-15 type. Molecular typing of the isolates showed the clonal nature of the 4 *K. pneumoniae* isolates. The *bla*<sub>CTX-M-15</sub> gene was genetically linked to insertion sequence ISEcp1B and was transferable by conjugation from 3 isolates.

**Conclusion:** Regular monitoring of resistance mechanisms, the establishment of a prevention strategy, and more rational and appropriate use of antibiotics are needed.

**P 235 CTX-M  $\beta$ -lactamases *Enterobacteriaceae* strains recovered from community-acquired urinary-tract infections in Bejaia, Algeria**

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38 *Enterobacteriaceae* strains (17 *Klebsiella pneumoniae*, 13 *Escherichia coli* and 08 *Enterobacter cloacae*) resistant to cefotaxime and/or ceftazidime were recovered from community-acquired urinary-tract infections in Bejaia, Algeria, between Mars 2007 and May 2009. CTX-M-15 extended-spectrum  $\beta$ -lactamase was identified in 33 isolates and CTX-M-3 in five isolates. In addition to *bla*<sub>CTX-M</sub> 9 strains

were found to produced *qnr* determinants (five *qnrBI* and four *qnrSI*) and 10 produce aac(6')Ib-cr. Molecular typing showed a clonal relatedness in some isolates.

**P 236 Epidemiology and antibiotic susceptibility of bacteria isolated from urinary tract infections at the Aziza Othmana hospital**

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**Introduction:** Urinary tract infections are considered to be one of the most common bacterial infections. Published data has shown that *Enterobacteriaceae* are the most frequent pathogens followed by the Gram positive cocci. Resistance to commonly used antibiotics seems to be increasing among these species.

**Aim of study:** Evaluate the frequency of isolation and the antibiotic susceptibility of bacteria responsible for urinary infections among hospitalized and out-patients.

**Materials and methods:** A retrospective study was carried out at the microbiology laboratory of the Aziza Othmana hospital on bacteria isolated from urine over one year (1<sup>st</sup> January to 31<sup>st</sup> December 2011). The identification was based on conventional methods and susceptibility to commonly used antibiotics was tested according to the CA-SFM guidelines.

**Results :** Among the 5334 urinary samples, 504 met the criteria of urinary infection (9,4%). Among the infections 27% came from hospitalized patients and 73% from out-patients. *Enterobacteriaceae* were the most common bacteria involved (92%) especially *E. coli* (57,9%) followed by *Klebsiella pneumoniae* (18,4%) and *Proteus mirabilis* (8,7%). Gram positive cocci were isolated in 6% of cases especially *Staphylococcus saprophyticus* (2,7%).

Among the *E.coli* strains, 55% were resistant to amoxicillin and 30% were resistant to amoxicillin-clavulanic acid. *Klebsiella pneumoniae* was resistant to amoxicillin-clavulanic acid in 16% of cases. Most of *Enterobacteriaceae* were sensitive to third generation cephalosporins. Indeed, global prevalence of extended spectrum beta-lactamase (ESBL) production was observed in only 2,5% of cases. Isolated resistance to nalidixic acid was observed in 3,2% of *Enterobacteriaceae* whereas resistance to quinolones (nalidixic acid, ofloxacin and ciprofloxacin) was observed in 5,5% of cases.

Among the *Staphylococcus spp* strains, 57% were producing a penicillinase and 23% were meticillin-resistant. Resistance to gentamycin was detected in 1,5% of cases.

**Conclusion:** The high prevalence of urinary tract infection requires a continuous surveillance of frequency and antibiotic susceptibility of bacteria involved. This will allow us to adapt antibiotic prescription protocols according to local epidemiological data.



**P 237 Emergence and spread of OXA-48 *Enterobacteriaceae* producers at Charles Nicolle Hospital of Tunis - Tunisia**

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OXA-48 is an emerging class D carbapenemase originally reported in *K. pneumoniae* in Turkey in 2004 and subsequently spread to various *Enterobacteriaceae* species throughout the Mediterranean area. This enzyme confers resistance to penicillins and reduced susceptibility to carbapenems, but spares broad-spectrum cephalosporins. It was largely detected in isolates producing extended spectrum  $\beta$ -lactamases (ESBLs). This study describes emergence and spread of OXA-48 in enterobacteria recovered at Charles Nicolle Hospital of Tunis-Tunisia.

Between January 2010 and January 2012, all *Enterobacteriaceae* strains producing ESBL with reduced susceptibility to ertapenem were investigated. Microbial identification was done by conventional methods. Phenotypic confirmation of ESBL production was done by double disc synergy test with/without cloxacillin. MICs of imipenem, meropenem and ertapenem were determined by E-test. Carbapenemase phenotypic production was evaluated using the modified Hodge test and the enzyme inhibition activity was detected using EDTA, clavulanic acid and cloxacillin. Specific primers were used for *bla*<sub>OXA-48</sub> and IS1999 detection by PCR. Transferability of the *bla*<sub>OXA-48</sub> was studied by conjugation and/or electroporation experiments for 6 strains.

Among the 5459 non duplicated *Enterobacteriaceae* isolated during the study period, 28 (0.5%) (20 *Klebsiella pneumoniae*, 7 *Enterobacter cloacae*, and 1 *Citrobacter freundii*) with reduced susceptibility to ertapenem were identified. The isolates were mainly recovered from surgery (39%) and from blood (39%). MICs values were comprised between 0.125 and >32  $\mu$ g/mL for imipenem and meropenem and 0.094 and >32  $\mu$ g/mL for ertapenem. For all strains, the modified Hodge test was positive, carbapenemase activity was not inhibited by any inhibitor and PCR for OXA-48 was positive. Twenty four isolates harboured IS1999. Conjugation transfer was successful for 5 strains.

This report confirms emergence and spread of OXA-48-producing *Enterobacteriaceae* in our hospital and underlines the need for strict surveillance and control of carbapenems use.

**P 238 Clinical spectrum and molecular characteristics of *Klebsiella pneumoniae* causing invasive infections**

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**Introduction:** Invasive *Klebsiella pneumoniae* infections include purulent abscess at various sites especially liver abscess, bacteremia and pneumonia. They have been linked to a virulent hypermucoviscous *K. pneumoniae* phenotype and to a specific genotype.

**Objective:** The aim of this study was to investigate the clinical spectrum and molecular characteristics of *K. pneumoniae* causing invasive infections.

**Materials and methods:** From September 2009 to March 2010, 344 strains of *K. pneumoniae* were collected from the laboratory of microbiology CHU Habib Bourguiba and from policlinique CNSS at Sfax. The clinical data were collected from medical records. Hypermucoviscosity phenotype was defined as positive string test. The virulence genes including *rmpA* (regulator of mucoid phenotype), *magA* (specific to K1 capsule serotype) and capsular serotype (K1, K2) were searched by PCR. X2 test or Fisher exact test were used for statistic analysis.

**Results:** The invasive syndrome was detected in 76 (26,4%) of the 344 cases of *K. pneumoniae* infections (52 bacteremia, 16 pneumonia, 8 abscess). From the 76 invasive infections, 54 (71%) involved hospital-acquired infections. Underlying diabetes mellitus was more common in community-acquired than in nosocomial infections (27,27% vs 3,7%; p=0,006). Overall, mortality was 19,73%; 13,63% of patients with community-acquired infection vs 22,2% of those with nosocomial infection (p=0,59). The prevalences of hypermucoviscosity phenotype, RmpA, MagA and serotype K1, K2 were 19,7%, 7,9%, 2,6% and 10,5% respectively. Univariate analysis indicated that distinctive invasive syndrome mostly occurred in patients infected with *K. pneumoniae* strains with the hypermucoviscosity phenotype (p=0,036), the K1 or K2 serotype (p=0,004) or positive for the *rmpA* gene (p<0,001).

**Conclusion:** Our study revealed a statistically significant clinical correlation between RmpA, serotype K1 or K2, hypermucoviscosity phenotype and *K. pneumoniae* mediated invasive syndrome. Identification of these virulence factors should prompt clinicians to initiate aggressive investigations for invasive diseases.

**P 239 First isolation of OXA-48 *Klebsiella pneumoniae* producer without co-expression of extended spectrum b-lactamases in Tunisia**

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Carbapenemases in *Enterobacteriaceae* has been usually identified in multidrug resistant isolates, which often accumulate multiple resistance mechanisms, including production of extended spectrum b-lactamases (ESBL). Here we report the first OXA-48 *Klebsiella pneumoniae* producer without co-expression of ESBL isolated at Charles Nicolle Hospital of Tunis. It was recovered in 14<sup>th</sup> October 2011, from vesicular fluid of a 75 year old female patient suffering from chronic lymphoblastic leukaemia and diabetes, hospitalized in the surgical ward B, in 23<sup>th</sup> September 2011 for fever and diarrhoea. Patient had not been hospitalized in the 12 last months and had not received any antibiotic in the previous 3 months. She was treated with ceftazidime, gentamicin and metronidazole with successful resolution.

Using disc diffusion method according to CLSI guidelines, *K pneumoniae* isolate was resistant to penicillins, 1<sup>st</sup> and 2<sup>nd</sup> generation cephalosporins and had decreased susceptibility to ertapenem. It remains susceptible to all other antibiotics tested. MICs of ertapenem, meropenem and imipenem were 16, 3 and 1.5 µg/mL respectively. The modified Hodge test was positive and the microbiological assays demonstrated a carbapenemase activity which was not inhibited by clavulanic acid or cloxacillin. PCR for OXA-48 was positive and the isolate harboured IS1999 involved in *bla*<sub>OXA-48</sub> mobilization.

Our findings highlight the risk of a discreet dissemination of the *bla*<sub>OXA-48</sub> gene in our institution and further reinforce the relevance of an extensive screening of carbapenemase producers.

**P 240 OXA-48-producing *Klebsiella pneumoniae* mediastinitis safely and effectively treated with prolonged administration of imipenem and colistin**

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**Objective:** We report a case of mediastinitis caused by a multidrug-resistant (MDR) OXA-48-producing

*Klebsiella pneumoniae* that was effectively treated with prolonged administration of imipenem and colistin.

**Methods:** Carbapenem resistance was characterized by PCR and DNA sequencing. The *K. pneumoniae* isolate was tested against colistin in combination with imipenem by microdilution checkerboard and time-kill curve techniques.

**Results:** A 70-year-old man developed a mediastinitis after a triple coronary artery bypass grafting. A multidrug resistant *K. pneumoniae* was recovered from 2 mediastinal surgical samples and 2 blood cultures on post-operative day 11. This isolate was resistant to all aminoglycosides, fluoroquinolones and to β-lactamase inhibitors including ertapenem but susceptible to imipenem (MIC = 0.5 mg/l) according to results of the E-Tests techniques. Molecular testing revealed that the isolate produced the OXA-48 carbapenemase and the extended spectrum β-lactamase CTX-M-14 and CMY-4. A treatment with imipenem and colistin was initiated on day 13. Over the next few days, the patient didn't improve and a second debridement and drainage were accomplished. After that the patient recovered well and a treatment course (imipenem and colistin) of 8 weeks was completed. No significant adverse effects were observed during colistin therapy; and synergistic or additive effects were demonstrated in the imipenem-colistin combination against this carbapenemase-producing *K. pneumoniae* using both checkerboard and time-kill curve techniques.

**Conclusion:** The efficacy of carbapenems for treating infections due to carbapenemase producers with low-level resistance or susceptibility to several carbapenem molecules remains debatable. This report demonstrates that the combined use of imipenem and colistin may be valuable in managing serious infections due to OXA-48 producing organisms.

**P 241 Emergence and dissemination of plasmid mediated quinolone resistance determinants among extended spectrum β-lactamase producers of *Klebsiella pneumoniae***

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Plasmid mediated quinolone resistance (PMQR), has been identified worldwide with a quite high prevalence among extended-spectrum b-lactamase producing enterobacteria. The aim of this study was to assess frequency and diversity of PMQR determinants among ESBL-producing *Klebsiella pneumoniae* isolated at Charles Nicolle hospital of Tunis.

From January to June 2010, 40 non redundant ESBL-

producing *K. pneumoniae* isolates were collected. Microbial identification was done by conventional methods and antibiotic susceptibility was performed by the disk diffusion method according to CLSI guidelines. ESBL production was detected using double disk synergy test. PMQR genes (*qnrA*, *qnrB*, *qnrS*, *qnrC*, *qnrD*, *qepA*, *aac(6')-Ib-cr*, and *oqxAB*) and *bla*<sub>ESBL</sub> associated genes were identified by PCR and sequencing. Quinolone resistance transfer was performed by conjugation and transformation assays. Quinolones MICs of PMQR harbouring strains were determined by agar dilution method and genetic relatedness between them was assessed by random amplified polymorphic DNA (RAPD).

Thirty five strains harboured PMQR determinants (12 of them carried 2 or 3 determinants). *oqxAB* gene was detected in 26 isolates, *aac(6')-Ib-cr* in 15, *qnrB1* in 7 and *qnrS1* in only one. All isolates were negative for *qepA*, *qnrA*, *qnrC* and *qnrD* genes. All *qnrB1* and *aac(6')-Ib-cr* genes were associated with *bla*<sub>CTX-M-15</sub>. *qnrS1* was associated with *bla*<sub>SHV-27</sub>, while *oqxAB* gene was associated with various *bla*<sub>ESBL</sub> genes. Only 3 PQMR determinants (*qnrB1*, *qnrS1* and *aac(6')-Ib-cr*) were transferred from 12 isolates. *bla*<sub>CTX-M-15</sub> was associated with either *qnrB1* or *aac(6')-Ib-cr* and *qnrS1* was linked with *bla*<sub>TEM-1</sub> in plasmids. MICs ranges were: nalidixic acid (2-512 mg/L), norfloxacin (0.12-512 mg/L) and ciprofloxacin (0.06-128 mg/L). PMQR harbouring strains showed distinct RAPD patterns. The concomitant transfer of PMQR genes with *bla*<sub>CTX-M-15</sub> among *K. pneumoniae* isolates underlines the risk of further dissemination into other *Enterobacteriaceae* which may result in limited antimicrobial options.

**P 242 First report of extended spectrum β-lactamase producing *Klebsiella pneumoniae* causing community acquired infection in Tunisia**

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Until recently, extended spectrum β-lactamase (ESBL) producing *K. pneumoniae* were exclusively nosocomial pathogens. However, in the last decade, these pathogens have increasingly been recognized in community patients. In this study, we investigate five cases of community acquired urinary tract infections due to *K. pneumoniae* ESBL producers collected between 2007 and 2009 at Charles Nicolle hospital. Demographic data, risk factors, antimicrobial treatments

and outcomes were recorded for each patient. Isolates were identified using conventional methods and their antibiotic susceptibility was performed by disk diffusion method on Mueller-Hinton agar according to the Clinical Laboratory Standard Institute guidelines. ESBL production was detected by the double disk synergy test and ESBL identification was done by the detection of *bla*<sub>TEM</sub>, *bla*<sub>CTX-M</sub> and *bla*<sub>SHV</sub> by PCR followed by sequencing.

All patients were women with a mean age of 56.6 years (extreme: 12 - 83 years). None of the following risk factors (diabetes, chronic kidney failure, cancer and surgery) was found. Two patients received antibiotic treatment in the previous 3 months. Empiric treatment based on cefixime (n=2) or ciprofloxacin (n=3) was adjusted by imipenen for 4 patients. Ciprofloxacin was maintained in one patient. Clinical outcomes were favorable for all patients. *K. pneumoniae* isolates frequently co-expressed resistance to aminoglycosides (n=4), cotrimoxazole (n=5), nalidixic acid and fluoroquinolones (n=4) and tetracyclines (n=4). All strains were susceptible to colistin and carbapenems. Four strains were found to harbor *bla*<sub>CTX-M-15</sub> gene and 1 strain, *bla*<sub>SHV-11</sub> gene.

Emergence of ESBL producing *K. pneumoniae* in the community can be a real threat given the known intrinsic capacity of *bla*<sub>CTX-M-15</sub> to disseminate through communities. Their global spread into the community has a potential to become a major public health problem in the near future. Thus, acting against risk factors will certainly contribute to ovoid diffusion of such multidrug resistant pathogens.

**P 243 First case of *Klebsiella pneumoniae* producing carbapenemase isolated from blood culture at Aziza Othmana Hospital**

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**Introduction:** Carbapenems are considered the choice for treatment of serious infections due to Gram negative bacilli, especially those producing extended-spectrum β-lactamases ESBL. Unfortunately, acquired resistance by producing carbapenem-hydrolysing enzymes has been described and represents actually a major problem.

**Case presentation:** We report the case of a 2 and a half-year-old boy, diagnosed with Burkitt lymphoma complicated by a jaw tumor. He was admitted to the onco-hematology department in October 2011; chemotherapy was started with good efficacy. In February 2012, the patient presented fever and diarrhea



associated to a severe neutropenia (100 PNN/ml). He was put under antibiotherapy: Colistin, Teicoplanin and Piperacillin-tazobactam with temporary improvement. A week later, the fever reappeared and C- reactive protein blood level increased (70mg/l). Blood cultures were then performed with isolation of *Klebsiella pneumoniae*. The antimicrobial susceptibility profile was determined by the agar diffusion method according to CA-SFM guidelines. It was intermediate for some  $\beta$ -lactamase or resistant for others, resistant to fluoroquinolones and aminoglycosides (except Amikacin). Standard double-disc synergy test, performed in order to detect ESBL, was negative. The minimum inhibitory concentrations for Ertapenem, Imipenem and Meropenem were determined using E-test strips. They showed resistance to Ertapenem but susceptibility to the others carbapenems. Carbapenemase producing was screened by modified Hodge test which was positive. The type of this carbapenemase was identified by molecular method (PCR); the amplification was negative in the *bla<sub>KPC</sub>* gene but positive in OXA gene confirming the class D (OXA-48) for the enzyme.

The patient was put under Colistin and fosfomycin with a favorable evolution and was discharged 10 days later.

**Conclusion:** This is the first report for *K. pneumoniae* producing carbapenemase at the Aziza Othmana hospital. The rapid dissemination of this type of enzyme and its consequences in treatment response and infection control justify a great attention with efficient surveillance in order to detect this type of resistance and to provide a better care for the patient.

**P 244 Antimicrobial resistance of *Escherichia coli* isolates from community-acquired acute pyelonephritis.**

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**Objectives:** *Escherichia coli* is the most common pathogen in community acquired acute pyelonephritis (CA-AP). The emergence of *E. coli* resistance increased in recent years and spread gradually worldwide leading to treatment failure. The goals of this study were to describe the resistance of *E. coli* in acute pyelonephritis.

**Methods:** Retrospective analytic study included all *E. coli* isolated from urine samples of patients admitted for acute pyelonephritis at infectious diseases department in the university hospital of Monastir between 2001-2010. Clinical and epidemiological features were collected. Patients aged > 14 years how presented temperature  $\geq 37,8^{\circ}\text{C}$ , flank pain and/or cost vertebral tenderness, urinary tract symptoms, leucocytes count >  $10^4/\text{ml}$  and bacteriuria >  $10^5/\text{ml}$  were enrolled. Identification of *E. coli* was performed by API20E. The

study of antibiotic susceptibility was performed by agar diffusion according to CA-SFM.

**Results:** A total of 365 isolates were collected. The mean age was 44.6 years  $\pm$  20.2 (14-89) and 264 (72.3%) were female. Dominant comorbid conditions was diabetes (23.5%). Complicated CA-AP was noted in 224 cases (61.4%). If we analyze only women, menopause was noted in 75 cases (28.4%) and pregnancy in 30 (11.3%). The rates of *E. coli* resistance to antibiotics were as follows: amoxicillin (59.9%), amoxicillin clavulanate (35.3%), trimethoprim-sulphamethoxazol (39.6%), cefalotim (26.2%), gentamicin (6.5%). Resistance rates for fluoroquinolones (FQ) were 8.3% for nalidixic acid, 7.3% for ciprofloxacin and 7.8% for ofloxacin. In sum, 8.8% of strains were resistant to FQ. The lowest rates of *E. coli* resistance were noticed for cefotaxim (3.5%), colistine (0.6%) and imipenem (0.3%). Thirteen strains were extended spectrum beta-lactamase (ESBL) producing (3.5%).

**Conclusion:** The *E. coli* resistance rates are increasing in Tunisia especially for FQ. We also assist to the apparition of community strains of *E. coli* producing ESBL. Antibiotics prescriptions should be more careful in order to stop resistance increase.

**P 245 Epidemiological profile of *Escherichia coli* urinary tract infections**

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**Introduction:** *Escherichia coli* is the main bacteria implicated in urinary tract infections (UTI). Its resistance to antibiotics is increased.

**Objective:** study the bacteriological profile of *Escherichia coli* UTI and its sensitivity to antibiotics.

**Materials and Methods:** Retrospective study of 390 strains of *Escherichia coli* isolated in urine during the period March 2010 to December 2011. Antibiotic susceptibility was performed using the disk diffusion method on agar medium according to the standards of the CA-SFM.

**Results:** The prevalence of *Escherichia coli* UTI was the order of 78.2%. *Escherichia coli* strains were resistant in 61.7% of cases with amoxicillin and in 37% of amoxicillin-clavulanic acid. The third-generation cephalosporin resistance with production of beta lactamase spectrum was reported in 3.1% of cases. The prevalence of extended-spectrum beta-lactamases *Escherichia coli* urinary tract infections community was 2.3%. These strains were resistant in 40.3% to gentamicin, 34.5% to cotrimoxazole and 10.2% to fluoroquinolones.

**Discussion:** The increasing resistance of *Escherichia coli* to  $\beta$ -lactamase and quinolones requires regular monitoring of antibiotic sensitivity and a rational use of antibiotics.

**P 246 Extended spectrum betalactamases producing *Enterobacter cloacae* strains in Algeria**

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**Objectives:** Characterization and molecular typing of 63 strains of *Enterobacter cloacae* producing extended spectrum beta lactamases (ESBLEc) and the epidemiology of patients infected with these strains from four hospitals in the city of Annaba in Algeria.

**Material and methods:** Antibiogram was performed by diffusion method on Muller Hinton agar, minimum inhibitory concentrations (MICS) were determined by the dilution method, Characterization of ESBL genes TEM, SHV, CTX-M and DHA-1 was performed by PCR, The epidemiological relationship between strains was performed by PFGE. The clinical and microbiological data were entered into EPI INFO database.v

**Results:** The overall prevalence of ESBLEc was 47, 6 % (The  $\beta$ -lactamase CTX-M 1 types- are predominant (76, 66%) followed by TEM (70%) and SHV (10%). Eighteen strains expressed at least two bla genes. The cephalosporinase DHA-1 type was found in five *E. Cloacae*. MICs revealed a high level of resistance to cefotaxime, ceftazidime and cefepim. Molecular typing revealed an epidemic clonal dissemination of EcESBL strains, with many infection risk factors.

**Conclusion:** This study revealed a high rate of ESBLEc in hospitals in the city of Annaba resulting from an epidemic clonal spread of ESBL genes. The implementation of a control program of spread of multiresistant bacteria will reduce significantly the incidence of ESBL.

**P 247 Extended-spectrum  $\beta$ -Lactamase producing *Enterobacter cloacae* causing nosocomial infections in the west of Algeria. A retrospective and multicenter Study**

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*Enterobacter cloacae* is a major nosocomial pathogen that causes serious infections. The clinical significance of extended-spectrum  $\beta$ -lactamase (ESBL) production in *Enterobacter cloacae* is not well established. A multicentre, retrospective, cohort study was carried out to gain baseline information on the molecular characteristics of  $\beta$ -lactamase producing *Enterobacter cloacae* in the west of Algeria. A total of 79 non repetitive *Enterobacter cloacae* were

collected at three University Hospital (hospital of Tlemcen, Oran and Sidi Bel Abbes). Antibiotic susceptibility (disc diffusion method and MIC) and screening for Extended Spectrum  $\beta$ -lactamase (ESBL) were performed according to the French Society for Microbiology guidelines. PFGE typing was carried out on all strains assayed. The  $\beta$ -lactamase pattern was obtained by IEF and bioassay. Genes of  $\beta$ -lactamases were amplified by PCR with specific primers and the products were sequenced and analyzed using informatics programs. Plasmid isolation and conjugation experiments were carried out using standard methodologies. Different  $\beta$ -lactamase resistance phenotypes were identified with the predominance of ESBLs (57%). The pulsed field gel electrophoresis (PFGE) showed different pulsotypes and confirm the epidemiological nature of the strains studied. PCR and sequence analysis revealed that most isolates produced ESBL CTX-M type, whereas only 5 produced SHV-type ESBLs. The *bla*TEM gene was found in all strains of *Enterobacter cloacae*. Conjugation experiments showed that *bla*CTX-M, *bla*TEM, and *bla*SHV were carried by conjugative plasmids of high molecular weight ( $\geq 70$  kb). The emergence of resistance genes may pose a public health problem. Thus, a policy of surveillance of resistance seems necessary.

**P 248 Faecal carriage of extended-spectrum beta-lactamase-producing *Enterobacteriaceae* in community settings in Tunisia**

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**Introduction:** The importance of community-acquired infections due to extended-spectrum beta-lactamase-producing *Enterobacteriaceae* (ESBL-PE) has been increasingly recognized in recent years. No comprehensive data are available on the prevalence, risk factors, and genotypes of ESBL production in community residents in Tunisia. This study aimed to determine the prevalence and risk factors of intestinal carriage of ESBL-PE in the community of Tunisia, Sfax. **Methods:** Rectal samples from 108 healthy volunteers were collected and plated on agar containing 2 mg/l of cefotaxime. Isolated strains were identified and ESBL production was tested by a double disk diffusion assay. Characterization of ESBLs was performed by PCR-sequencing. Molecular epidemiology was analysed by Rep-PCR. The epidemiological characteristics of the population were analyzed.

**Results:** 5 ESBL-producing *Enterobacteriaceae* were isolated from the 108 samples (carriage prevalence = 4.6%). The isolates included 3 *Escherichia coli* and 2 *Klebsiella pneumoniae*. 4 ESBL-PE isolates had

*bla*<sub>CTX-M</sub> genes of group 1 and one had *bla*<sub>CTX-M</sub> gene of group 9. The clone *E. coli* O25b:H4-ST131 was detected in 1 isolate. ESBL-producing strains were clonally unrelated. 2 strains were resistant to fluoroquinolones. No individual risk factor was identified among the five colonized persons.

**Conclusion:** Our results show the importance of the intestinal tract as a reservoir for ESBL-producing isolates in the community of Tunisia. This alarming spread of resistance genes should be stopped urgently by improving hygiene and streamlining the distribution and consumption of antibiotics.

**P 249 Monitoring of antibiotic resistance of proteus germe in West of Algeria-Multicenter study-**

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**Introduction and objective:** In hospital units the antibiotic use is often associated with an increase in bacterial resistance to antibiotics; it is in this line of thinking that we realized a study in hospitals of west Algeria (Tlemcen, Sidi Bel Abbes and Oran), to evaluate a situation of antibiotic resistance of bacteria belonging to the genus *Proteus* and to control epidemics caused by these multiresistant bacteria and study the origin, the fonction and the mechanisms of antibiotic resistance.

**Materials and methods:** In the period from 09/2009 to 04/2011, 648 samples were performed from the different services of three hospitals in west of Algeria. The resistance to different classes of antibiotics was determined by the disk diffusion method in Mueller Hinton agar and interpretive reading was established by the CA-SFM

**Results:** The results reveal a diversity of Gram-negative strains. From a total of 713 gram-negative bacteria identified, 75 (10, 51%) belong to the genus *Proteus* are represented by *Proteus mirabilis* with 67 strains, *Proteus vulgaris* 7 strains and one strain of *Proteus pinneri* ; The results of the antibiogram revealed the emergence of resistant strains to the majority of antibiotics tested in particular the B-lactam, the aminosids and fluoroquinolons ; Phenotypic analysis of *Proteus* strains is in favor of a high levels pénisilinas with a percentage of 25% of isolates, follows by 17% of strains showed resistance associated with the hyper production of cephalosporinase.

**Conclusion:** Updating the data on the epidemiological profile and sensitivity to antibiotics germs is essential to put in place an empiric antibiotic therapy in hospital units. Phenotypic characterization of resistance mechanisms should be adopted to avoid false of sensitivities and play a role in rationalizing the use of antibiotics in the control of developing bacterial multirésistantes.

**P 250 Multidrug-resistant *Salmonella enterica* serotype Senftenberg, Kentucky and Ohio isolates producing CTX-M,3  $\beta$ -lactamases from Constantine, Algeria**

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**Background:** Extended-spectrum- $\beta$ -lactamases (ESBLs) are uncommon in *Salmonella enterica*. Gastro-enteritidis due to CTX-M-3-producing *S. enterica* serotype Senftenberg have been reported in 2004 from the Neonatology ward of the hospital of Constantine, Algeria, where it represented major infectious and therapeutic problems. The aim of the work was to further investigate the presence of *bla*<sub>CTX-M</sub> genes in other *S. enterica* serotypes isolated in this same unit between 1987 to 2006.

**Methods:** A collection of 20 ESBL-producing *Salmonella* strains representing four major serogroups Senftenberg, Kedougou, Ohio and Kentucky were studied by disc diffusion antibiograms, plasmid extractions, conjugations, by PCR and sequencing.

**Results:** ESBL-producing *Salmonella* isolates were increasingly recovered over the study period, reaching a prevalence in 2006 of almost 100% in the Neonatology ward. The serotype Senftenberg was the most prevalent, whereas serotypes Kedougou, Ohio and Kentucky were only periodically isolated. These isolates were multi-drug resistant and remained susceptible to imipenem, cefoxitin, and quinolones.

After initial detection of CTX-M-3 (in *S. Senftenberg* in 1998, in *S. Ohio* in 1999 and in *S. Kentucky* in 2001) subsequently only CTX-M3-producing isolates were recovered. A similar sized self-transferable plasmid (ca 130-kb) was detected in all the CTX-M3-producing-*Salmonella* strains. Insertion sequence ISEcp1 was identified upstream of the *bla*<sub>CTX-M-3</sub> genes.

**Conclusion:** Further identification of CTX-M-ESBLs in *Salmonella* in hospital-acquired infections further underlines that this genus may be a reservoir for ESBL genes in the community, but also in hospital settings in specific geographical areas.

**P 251 *Salmonella*-ESBL meningitis : difficulties of treatment**

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**Introduction :** *Salmonella meningitis* is an unusual



manifestation of salmonellosis. Relatively common in developing countries, it's particularly seen at extremes of ages and in individuals with certain predisposing conditions. In this paper, we report the example of a child who has an immune deficiency : lack of IL12-P40, diagnosed on the occasion of a family investigation, to illustrate the difficulties of treatment of salmonella meningitis that he presented.

**Case report:** The patient is a four and a half year- old boy who was admitted to the pediatric ward of Sahloul for several times .In fact, he presented repetitive infections due to salmonella which were treated by poly-antibiotherapy and the evolution was favourable in all cases.

At the present, the child is admitted on clinical features of meningitis. The cerebrospinal fluid (CSF) culture is positive for a Salmonella producing an extended spectrum beta-lactamase (ESBL) and resistant to the majority of fluoroquinolones.

Various drugs have been used for the treatment : Amikacin, fosfomycin, imipenem, cotrimoxazole, chloramphenicol. Apyrexia, regression of inflammatory syndrom and sterilisation of (CSF) couldn't be obtained only after the use of Meropenem, associated to ciprofloxacin and cotrimoxazole.

**Conclusion :** Salmonella meningitis is becoming an important clinical entity but the treatment of this illness is difficult and it has never been standardized. Optimum management of salmonella meningitis requires antibiotic(s) with bactericidal action, with excellent penetration into (CSF), with good intracellular diffusion and used for at least 4 weeks. In view of the increasing incidence of salmonella meningitis in developing countries, there is a need for more clinical experience with third -generation cephalosporins, fluoquinolones and eventually meropenem.

#### P 252 *Haemophilus influenzae* in children: identification and molecular mechanisms of beta-lactams resistance

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**Introduction:** *Haemophilus influenzae* (Hi) is a human specific pathogen that causes invasive and non invasive infections in children.

**Objectives:** The aim of this study was to determine the bacteriological characteristics of ampicillin-resistant Hi strains isolated from children namely serotyping, biotyping and their antibiotic susceptibilities specifying the mechanisms and the beta-lactamase resistance genes.

**Methods:** This study concerned 138 strains isolated between 2009 and 2010 at the microbiological laboratory of the children's hospital of Tunis. The bacteriological identification was made according to the conventional

methods. The beta-lactamase production was performed for each strain using chromogenic cephalosporin test. Antimicrobial susceptibility for all Hi isolates was determined as recommended by the CA-SFM guidelines. We determined their resistance genes (*bla<sub>TEM</sub>*, *bla<sub>ROB</sub>* and *ftsI*) by PCR as well as their capsular genes (*bexA*).

**Results:** The majority of the strains were non invasive (N=61). The biotype III was the most frequent (51.61%) followed by the biotype II (16,12%). PCR amplification of the *bexA* gene and the type b gene showed that all of the strains were identified as non-typeable. Sixty two strains were ampicillin-resistant (44.92%) among them 37 strains (59.67%) were beta-lactamase producing. All of the 37 strains harbored *bla<sub>TEM</sub>* gene. PCR amplification of beta-lactams resistance genes subdivided ampicillin resistant Hi strains into 3 groups. The first group included 31 beta-lactamase positive strains (22.46% %) that harbored *bla<sub>TEM</sub>* gene and the normal *ftsI* gene, it's called beta-lactamase positive ampicillin resistant (BLPAR). The second group is composed of 25 beta-lactamase negative isolates (18.11%) with neither *bla<sub>TEM</sub>* gene nor the normal *ftsI* gene; it's called beta-lactamase negative ampicillin resistant (BLNAR). Finally, the group of the beta-lactamase positive amoxicillin-clavulanate resistant strains (BLPACR) where 6 beta-lactamase positive isolates (4.35%) harbored both *bla<sub>TEM</sub>* gene and a mutated *ftsI* gene.

**Conclusion:** In our country, ampicillin resistance is increasing continually mainly the BLNAR strains which were rare in Tunisia.

#### P 253 Influence of Bacterial Colonization on Gram-negative Infections among Preterm Neonates

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Gram-Negative infection is an increasing problem among neonates and its associated with a higher rate of morbidity and mortality particularly among the preterm neonates. The **Objectives** of this study were to determine 1- Prevalence of Gram Negative Bacilli (GNB) infection among preterm neonates, 2- Correlation between colonization with the onset of infection, 3- Antibiotics susceptibility of GNB isolates.

**Methods:** The study was carried out at the nursery unit at AL Jala hospital of obstetrics and gynecology, Tripoli, in a period of two years ( 2009 - 2010). A total of 112 preterm neonates were studied. Their gestational age ranged from 24-36 weeks and birth weight from 700-4900 grams. Surveillance cultures which include; mouth,

nose, axilla, rectum, and umbilicus were taken from preterm neonates twice at the first week and then once weekly. Clinical samples were taken according to the sites of infections indicated.

**Results:** GNB colonization rate was varied to be 19.6%, at first days, though 63.2% at the second week of hospitalization. 66.7% of neonates were colonized with GNB (P=0.014). 74 preterm were colonized, Off them 25 developed infection, while of 38 non-colonized only one developed infection (P=0.000). Rectum was the commonest site of colonization. The common infection was found to be septicemia, omphalitis, and urinary tract infection. 28(25%) off them were died as a result of infection. *Acinetobacter baumannii* is a permanent colonizer at an early days of hospitalization followed by *Klebsiella pneumoniae* and *Escherichia coli* and lately *Pseudomonas* species and *Enterobacter cloaca* after two weeks which was associated with a higher rate of resistance to the antibiotics. **Conclusions:** GNB infection is a major cause of death among preterm neonates, colonization with GNB increased with hospitalization. This was found to be an important step in developing infection. Preterms were heavily colonized at 3rd day of hospitalization by early colonizers as *Pseudomonas* spp. & *Enterobacter* spp. Though late colonizers was found to be *Klebsiella* spp. & *E. coli* with high rate resistant and associated with a higher rate of infection. Furthermore, rectum was found to be the most useful surveillance site to be used in detecting preterm infection

**P 254 Epidemiology of antibiotic resistance among Non-fermentative Gram negative rods in Sidi Bel Abbes's Hospital (Algeria).**

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**Introduction:** Non-fermentative Gram negative rods are opportunistic pathogens mainly responsible for nosocomial infections. These bacteria exhibit a big power of adapting for the antibiotic resulting in therapeutic problems often acute. The present study was undertaken to determine the epidemiology of antibiotic resistance mechanism in 100 Non-fermentative Gram negative rods strains, isolated from various units in the University Hospital of Sidi Bel Abbes, Algeria.

**Material and methods:** The in vitro activity of 15 antibiotics, including 8  $\beta$ -lactamase, four aminoglycosides, two fluoroquinolones and colistin, were determined by disc diffusion, and minimum inhibitory concentrations (MICs) were determined by the agar dilution technique in Mueller Hinton medium and results were interpreted according to the CASFM criteria. Conjugation tests followed by a visualization of

plasmidic content by agarose gel electrophoresis were performed.

**Results:** The study *in vitro* of susceptibility of these organisms to antibiotics revealed the emergence of multidrug-resistant strains of *Acinetobacter baumannii* including resistance to the broad-spectrum cephalosporins, aztreonam, imipenem, fluoroquinolones, and aminoglycosides causing serious therapeutic failures, for which several plasmid profiles were detected. The analysis of resistance phenotypes to  $\beta$ -lactamase of *Pseudomonas aeruginosa* showed the predominance of wild type (58.7%) followed by non-enzymatic resistance phenotype (41.3%).

**Conclusion:** These results show that the frequency of these multidrug-resistant strains is increases in this hospital and that their emergence represents a serious therapeutic and epidemiological problem. This means the necessity of implementation of strict hygienic rules, supervision of hospital microbial environment and rational antibiotic usage.

**P 255 Epidemiological profile and antibiotic resistance of *Pseudomonas aeruginosa* isolates in burn patients in Tunisia over a three –years period**

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**Introduction:** *Pseudomonas aeruginosa* is a known opportunistic pathogen frequently causing serious infections in burned patients.

The aim of this study was to analyze the epidemiological profile of *Pseudomonas aeruginosa* isolated in a Tunisian burn unit.

**Materials and Methods:** During a 3-year period (from 01 July 2008 to 30 June 2011), 544 non repetitive strains of *P. aeruginosa* were isolated from burn patients. Susceptibility to antibiotics was assessed according to CA-SFM guidelines. Serotypes were identified by slide agglutination test using *P.aeruginosa* O antisera (Biorad). Producing carbapenemase was analyzed for 202 imipenem resistant isolates by EDTA test. Susceptibility testing data were stored in a laboratory data base using whonet 5.3 software.

**Results:** *P.aeruginosa* was the second most frequent bacteria isolated from burned patients (15%) after *Staphylococcus aureus* (20%) and *Acinetobacter baumannii*(9%) during the study period.

The most frequent sites isolation of *P.aeruginosa* were cutaneous infections and blood cultures (83.4%). The percentages of resistant isolates were as follows: ceftazidime: 34%; imipenem: 37.1%, ciprofloxacin: 27.1% and amikacin: 29.6%. The most prevalent serotypes were: 011(51%), 06(17%), 03 (8%), 04(12%), 012(5%). Among the 202 imipenem resistant strains, 58% expressed a metallo-carbapenemase. All these

strains were resistant to all tested antibiotics except colistin and belonged to the serotype O11.

**Conclusion:** This study reveals that metallo- $\beta$ -lactamase producing *Pseudomonas aeruginosa* is an emerging threat in Tunisian burn center (58% of imipenem resistant isolates) and showed be contained by implementation of timely identification, strict isolation methods and better hygienic procedures.

**P 256 *Pseudomonas aeruginosa* lung infections: clinical, microbiological and therapeutic characteristic**

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**Introduction:** *Pseudomonas aeruginosa* is involved in nosocomial respiratory infections. These infections are serious. Lethality can reach 50%. The bacterium is known for its resistance to many antibiotics which poses serious problems for treatment and promotes its spread in hospitals.

**Materials and Methods :** We describe in this study 27 cases of *Pseudomonas aeruginosa* lung infections collected retrospectively at pulmonology department at CHU Hedi Chaker, Sfax on a period from 2000 to 2009.

**Results:** our population included 27 patients. The average age was 67 years with a sex ratio of 0.6. Smoking has been found in 60% of cases. Histories of patients were dominated by: bronchiectasis (13 cases); advanced COPD (7 cases); sequelae of tuberculosis (5 cases), persistent asthma (1 case), lung cancer (1 case). Two other patients had a history of an infection by another multi-resistant bacterium. The clinical signs were dominated by the signs of bronchitis, dyspnea, fever and a bad general condition. Thirty five percent of patients presented with signs of acute respiratory failure. It was bronchial infection (22 cases), pneumonia (1 case), purulent pleurisy (2 cases) and lung abscess (1 case). It was mono-bacterial infections in 80% of cases. The isolated *Pseudomonas aeruginosa* was susceptible to ceftazidime (90%), amikacin (84%), ciprofloxacin (72%), imipenem (94%) and colimycin (100%). The combination ceftazidime amikacin was prescribed in 40% of cases. The average duration of antibiotic therapy was 16 days. The evolution was considered favorable in 90% of cases. Two patients was died in an array of acute respiratory failure.

**Conclusion :** *Pseudomonas aeruginosa* lung infections usually affect the vulnerable people. Excessive use of broad spectrum antibiotics favors their selection, hence the importance of rational use of antibiotics. An essential prevention is required for all hospital services.

**P 257 Phenotypic and genotypic characterization of  $\beta$ -lactam resistance of *Pseudomonas aeruginosa* isolated in Sfax, Tunisia**

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**Introduction:** *Pseudomonas aeruginosa* is responsible for nosocomial infections and demonstrate many types of resistance mechanisms to antibiotics. The aim of this study was to determine the antibiotic resistance rates and serotypes of *P. aeruginosa* isolates, and to investigate the mechanisms of  $\beta$ -lactamase resistance.

**Materials and Methods:** *P. aeruginosa* strains were collected between June 2009 and June 2010 in Microbiology department of Habib Bourguiba university hospital in Sfax, Tunisia. All the isolates were characterized by serotyping. Antimicrobial susceptibility was studied by the agar diffusion method according to CA-SFM guidelines. The resistance mechanisms to  $\beta$ -lactams were identified phenotypically and by molecular methods.

**Results:** During this period, a total of 353 non-repetitive strains of *P. aeruginosa* were collected from 325 patients. Among these strains, 212 isolates were susceptible to all the  $\beta$ -lactams. The proportion of antimicrobial resistance were: 30.6% for ticarcillin, 29.7% for ticarcillin clavulanic acid, 25.8% for imipenem, 20.4% for aztreonam, 18.4% for ceftazidime, 16.1% for piperacillin, 14.7% for piperacillin-tazobactam, 17.8% for tobramycin, 12.5% for amikacin and 21% for ciprofloxacin.

Resistance to  $\beta$ -lactams was due to the production of transferable  $\beta$ -lactamases (15.6%), overproduction of cephalosporinase AmpC (7.9%), non-enzymatic mechanisms including the loss of porin OprD (12.2%) and overproduction of the active efflux system (10.8%).

For 7.4% of isolates, resistance to  $\beta$ -lactams was due to association of two or more resistance mechanism. PCR amplification followed by sequencing of *bla* genes identified the following transferable  $\beta$ -lactamases: penicillinases; PSE-1: 1.4%, OXA-2: 23.4%, : 1.4% and metallo-beta-lactamases; VIM-2: 22%. These  $\beta$ -lactamases were frequently associated in the same strain, especially OXA-2+VIM-2 (16.3%).

Among the typed strains, serotypes O11 and O6 were the most frequent (18.7% and 12.5%, respectively) followed by serotypes O1 (9.6%) and serotypes O10, O2, O7, O12.

Serotypes O1 and O6 were the most sensitive. However, serotype O11 showed high resistance to  $\beta$ -lactam antibiotics. The VIM carbapenemase was frequently produced by serotype O11.

**Conclusion:** Our study shows that *P. aeruginosa* can very often accumulate different resistance mechanisms. Moreover, our study underlines the spread of VIM-2-metallo-beta-lactamase-producing *P. aeruginosa* isolates as in important source of carbapenem resistance.



**P 258 Emergence of carbapenem-hydrolysing VIM-2 metallo- $\beta$ -lactamase in *Pseudomonas aeruginosa* from Algeria.**

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**Introduction:** The bacterial multiresistance to  $\beta$ -lactams and imipenem is an emergent feature in the university hospital of Oran in Algeria. This study was conducted to elucidate natural and acquired mechanism of resistance to  $\beta$ -lactams in strains of *Pseudomonas aeruginosa* isolated in different wards of the hospital.

**Material and methods:** Seventy consecutive *P. aeruginosa* isolates obtained from hospitalized patients were subjected to susceptibility testing to antipseudomonal drugs by disc diffusion, and minimum inhibitory concentrations (MICs) were determined by the agar dilution technique in Mueller Hinton medium and results were interpreted according to the CASFM criteria. M,L detection was performed by using Etest M,L strips as well as two in-house techniques: the double-disk synergy test (DDST), and the combination disk test (CDT). Identification of M,L was performed by PCR amplification followed by sequencing of bla genes.

**Results:** Among 39 strains of *Pseudomonas aeruginosa* resistant to imipenem, the activity of  $\beta$ -lactamase is inhibited by the action of EDTA in only 2/39 strains which produce a metallo- $\beta$ -lactamase. These 2 strains were from tracheal aspirates of two patients hospitalized at two different service, neurosurgery and intensive care units and were highly resistant to carbapenems and other  $\beta$ -lactams except aztreonam. PCR with blaVIM, blaIMP and blaNDM specific primers, followed by sequencing, revealed an identical blaVIM-2 gene in each M,L-positive isolate.

**Conclusion:** The rapid dissemination of multidrug-resistant strains producer M,L represent a major therapeutic and epidemiological problem and requires the implementation of not just regular surveillance studies, but also the proper and judicious selection of antibiotics, especially carbapenems.

**P 259 Evolution of antimicrobial resistance among *Pseudomonas aeruginosa* isolated at a Tunisian teaching hospital (2001-2011)**

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*Pseudomonas aeruginosa* is an opportunistic pathogen, mainly responsible of nosocomial infections. *P. aeruginosa* is naturally resistance to many drug classes and it is able to acquire resistance against all relevant treatments. The aim of this study was to determine the rate of antibiotic resistance patterns of *P. aeruginosa* isolated from Charles Nicolle hospital of Tunis and to follow the variation in resistance rates between 2001 and 2011.

A total of 3384 non replicated *P. aeruginosa* clinical isolates were recovered. Identification was performed according to conventional methods and antibiotic susceptibility was made using the disk diffusion method according to the Clinical Laboratory Standard Institute guidelines. Strains were mainly isolated from surgery (60%), followed by medicine (24.5%) and intensive care unit (8.8%). They were more frequently recovered from urine (45.5%), pus (21.6%) and pulmonary samples (12%).

Resistance was noted to several antibiotic agents; 23% to ceftazidime, 23.5% to imipenem 30% to piperacillin, 29% to piperacillin-tazobactam, 29.5% to amikacin, 29% to tobramycin, 43% to gentamicin and 36.2% to ciprofloxacin. No resistance to colistin was found. Over the 708 imipenem resistant strains 16% were resistant to all antibiotic tested except to colistin; 70% of them were isolated in urology. From 2001 to 2011, resistance rates decreased for all antibiotics. For ceftazidime, imipenem, piperacillin, piperacillin-tazobactam, amikacin and ciprofloxacin they passed from 13.1%, 22.5%, 39%, 31.3%, 31% and 36.7% respectively in 2001, to 12.5%, 11.5%, 24.3%, 15.3%, 10.9% and 25.3% respectively, in 2011.

Despite the decrease of antibiotic resistance rates of our *P. aeruginosa* strains, improved antibiotic use and methods of detection are needed to reduce transmission of these bacteria.

**P 260 Bacteraemia due to *Stenotrophomonas maltophilia* in intensive care units: An Analysis of 33 Episodes**

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*Stenotrophomonas maltophilia* is a multidrug-resistant, gram-negative bacillus that has emerged as an important opportunistic pathogen associated with high morbidity and mortality rates. The aim of this review is to describe the characteristics of patients with this infection and their outcome, the antibiotic sensitivity patterns, and to contrast this with other published reviews.

Our study is a retrospective analysis of bloodstream infections due to *S. maltophilia* in intensive care units at a university hospital in Sousse. Cases were identified via

microbiology laboratory reports and relevant clinical data were collected from the medical record of each patient.

In this study, 93% of 33 episodes were nosocomial and the mean duration of stay prior to bacteraemia was 29±23 days. The mean age of patients was 54±16 years. There were 22 deaths (71%) 15±12 days after the bacteraemia.

Almost 17 of patients was exposed to broad-spectrum antibiotics specifically imipenem before their positive culture.

Among cases, 23 (74,2%) patients had mechanical ventilation, 29 (93,5%) had central venous catheterization and 28 (90,3%) had urinary catheter.

Antibiotic susceptibility testing revealed that isolates were most sensitive to sulfamethoxazol (71%), Ciprofloxacin (CIP) (84%) and to colistin (58%)

Twenty two per cent (22,6%) episodes were polymicrobial and the most common additional pathogens was *Acinetobacter baumannii* imipenem resistant. A probable portal of entry, with isolation from the site preceding bacteraemia was identified in 27,3% of bacteraemic episodes and 57% were catheter-related. Fifty seven per cent (57,9%) of the episodes was treated with antibiotic combination and 42,1% with monotherapy specifically CIP (35%).

Our results were similar to those described by other authors reported in the literature in the last 20 years. These studies have been mostly retrospective and only few of these included more than 35 patients.

Prevention of *S maltophilia* acquisition and infection relies on the cornerstones of modern infection control with, in the case of *S maltophilia*, somewhat higher emphasis on control of antimicrobial consumption and consideration of environmental reservoirs.

#### **P261 Carbapenem resistance in *Acinetobacter baumannii* clinical strains isolated in the university hospital Tlemcen in Algeria**

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**Introduction:** *Acinetobacter baumannii* is a species frequently involved in severe nosocomial infections, causing real therapeutic difficulties because of its ability to develop multiple mechanisms of antibiotic resistance. This species is emerging as important opportunistic pathogen in the university hospital of Tlemcen in Algeria and illustrates a high degree of adaptability in the hospital environment.

**Methods:** The objective of this prospective study is to elucidate the mechanisms of resistance in *Acinetobacter baumannii* clinical strains isolated from patients and the environment of the hospital of Tlemcen in Algeria.

197 clinical isolates of *Acinetobacter baumannii* were investigated. Characterization of  $\beta$ -lactamases was undertaken by phenotypic tests for the detection of extended spectrum  $\beta$ -lactamases (ES,L), metallo- $\beta$ -lactamases (M,L) or oxacillinases. MICs were determined by the dilution method on Muëller Hinton agar to assess susceptibility to  $\beta$ -lactams, aminoglycosides, ciprofloxacin and colistin. PCR experiments were performed. The bla<sub>OXA-23-like</sub> and bla<sub>OXA-58-like</sub> genes were amplified using combinations of primers OXA-23A and OXA-23B, OXA-58A and OXA-58B respectively. Strain typing was done by AP-PCR.

**Results:** The determination of minimum inhibitory concentrations shows high levels of resistance to  $\beta$ -lactams with ( $\geq 512 \mu\text{g/ml}$ ) for the ceftazidim and (32-64  $\mu\text{g/ml}$ ) for imipenem. PCR amplification showed that the strains resistant to  $\beta$ -lactams, particularly to carbapenems are producing an oxacillinase belonging to the group bla<sub>OXA23-like</sub>. Molecular typing showed the presence of a clonal strain of *Acinetobacter baumannii* in the hospital of Tlemcen.

**Conclusion:** This study represents the first description of *Acinetobacter baumannii* producing the oxacillinase OXA-23 in the West of Algeria. The surveillance of these strains is essential for understanding their spread and to adapt the fight against the MDR.

#### **P262 Characterization of *Acinetobacter baumannii* isolated from intensive care units in two teaching hospitals from Algeria and Tunisia**

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Carbapenem resistance is increasingly being reported among *A. baumannii*. It results mostly from the expression of acquired carbapenem-hydrolysing oxacillinases. This study was conducted to identify the enzymatic mechanism of carbapenem resistance in *A. baumannii* isolated, in 2009, from intensive care units of 2 teaching hospitals (Charles Nicolle Hospital of Tunis and Dr Dorban hospital of Annaba).

Twenty seven non repetitive carbapenem-resistant *A. baumannii* were collected (7 strains from Algeria and 20 from Tunisia). Isolates were identified by conventional techniques and antibiotic susceptibility was performed by disk diffusion method. MICs were determined by agar dilution method. EDTA-disk synergy test was performed for metallo- $\beta$ -lactamases (MBL) phenotypic detection. Detection of bla<sub>OXA-23-like</sub>, bla<sub>OXA-40-like</sub>, bla<sub>OXA-51-like</sub> and bla<sub>OXA-58-like</sub> families was performed by PCR followed by sequencing. Genetic relatedness between strains was

investigated by pulsed-field gel electrophoresis (PFGE). Strains were recovered from respiratory tract specimens (n=12), blood (n=11), material (n=3) and urine (n=1). All strains were co-resistant to all  $\beta$ -lactams, gentamicin, amikacin, ciprofloxacin but remained susceptible to colistin. They showed high level of resistance to ticarcillin ( $MIC_{50} > 2048 \mu\text{g/mL}$ ), ticarcillin-clavulanic acid ( $MIC_{50} > 1024 \mu\text{g/mL}$ ), aztreonam ( $MIC_{50} > 256 \mu\text{g/mL}$ ), ceftazidim ( $MIC_{50} = 2048 \mu\text{g/mL}$ ), imipenem ( $MIC_{50} = 256 \mu\text{g/mL}$ ), meropenem ( $MIC_{50} = 128 \mu\text{g/mL}$ ) and cefepime ( $MIC_{50} = 128 \mu\text{g/mL}$ ). MBL production was negative for all isolates. *bla*<sub>OXA-51-like</sub> was detected in all strains and *bla*<sub>OXA-23-like</sub> in 22 strains (5 from Algeria and 17 from Tunisia). However, *bla*<sub>OXA-58-like</sub> and *bla*<sub>OXA-24-like</sub> were not found in any isolate. The sequencing of the amplified fragments confirmed the presence of *bla*<sub>OXA-23</sub>. Six major PFGE patterns were found in the Tunisian isolates. However, the Algerian strains were clustered in one clone.

This study shows a high distribution of *bla*<sub>OXA-23</sub> in imipenem-resistant *A. baumannii* isolated in Tunisia and Algeria. It demonstrated the epidemic diffusion of this multidrug resistant pathogen. Thus, strengthening of prevention measures are required to control further spread of carbapenemases in the two countries.

**P263 Fosfomycin for the treatment of invasive infections due to multidrug-resistant gram-negative bacilli**

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**Introduction and Objectives:** infections caused by multidrug-resistant (MDR) gram-negative bacilli have become a growing problem. This reduces the number of reliably active drugs that can be used to treat infections with these pathogens and leads to the return to old antibiotics like fosfomycin. The aim of this study was to evaluate the efficacy and safety of fosfomycin in the treatment of invasive infections due to MDR gram-negative bacilli.

**Patients and methods:** in a retrospective study over eight years (2004-2011) we include 17 patients hospitalized for invasive infections due to MDR gram-negative bacilli, and treated by fosfomycin.

**Results:** the mean age of the 17 patients was 53 years (30-76). The disease was an acute pyelonephritis (7 cases), sepsis (3 cases), bronchopneumonia (1 case), malignant external otitis (2 cases), chronic otitis media

(1 case), sternite (1 case), phlegmon of the hand (1 case), pelvic collection (1 case). Eighteen MDR gram-negative bacilli were isolated of which nine (50%) were extended-spectrum  $\beta$ -lactamase producers. The strains isolated were *Pseudomonas aeruginosa* (9 cases), *Klebsiella pneumoniae* (5 cases), *Enterobacter cloacae* (2 cases), *Pseudomonas fluorescens* (1 case) and *E. Coli* (1 case). Our strains were susceptible to colomycin (100%), imipenem (88%), amikacin (59%), ceftazidim (47%), gentamicin (33%) and fosfomycin (100%). Fosfomycin was prescribed with imipenem in 12 cases, ceftazidim in 3 cases and colimycin in 2 cases. The average duration of fosfomycin treatment was 11 days, with a mean dose of 8 grams per day. Evolution in short and long term was favorable. No adverse effects were detected.

**Conclusion:** fosfomycin could be a good alternative in the treatment of invasive infections due to MDR gram-negative, with good activity against extended-spectrum  $\beta$ -lactamase producing strains.

**P264 Evolution of multiresistant bacteria in Mohamed Kassab Orthopedic Institute (MKOI) between 2008 and 2011**

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**Introduction:** Control of bacterial resistance to antibiotics is a public health priority. Our work is to study the evolution of the incidence of multiresistant bacteria (BMR) to MKOI. **Materials and methods:** This work is a retrospective study performed in clinical laboratories in MKOI from 1 January 2008 to 31 December 2011 occurring in 510 strains of BMR, non-repetitive, from isolated samples for diagnosis within 24 hours of admission.

**Results:** The occurrence of infections BMR declined clearly with passage of 12.07% in 2008 to 8.31% in 2009 to stabilize at this rate. The epidemiology of BMR shows a predominance of *Staphylococcus aureus* resistant to methicillin (MRSA) with an overall rate of 41.76% against 7.64% for *Pseudomonas aeruginosa* resistant to ceftazidime and / or imipenem. The evolution of multidrug resistance is characterized by a progressive decrease of MRSA (from 49.58% to 39.02%) contrasting a remarkable increase of *Acinetobacter baumannii* (from 10.73% to 19.51%) and *Pseudomonas aeruginosa* (from 5.87% to 10.56%).

The majority of strains derived from the operating room D 35.49%. It's about 86.27% of samples of pus and abscess, 83.42% of the strains are MRSA. The physical medicine and functional rehabilitation (PMFR) and the intensive care unit present respectively 19.8% and 16.27% of the strains. BMR isolates are largely predominated by Enterobacteriaceae producing extended-spectrum beta-lactamases (ESBLs) from urine



samples in 48.64%, 38.91% identified in the service of PMFR. These ESBLs are associated with a particular emergence of *Acinetobacter* 34.42% in the resuscitation department.

**Conclusion:** Assessing the appropriate use of antibiotics and the introduction of geographical and technical isolations measures in patients with BMR including resuscitation and functional rehabilitation could result in the control of the spread of BMR and reduce their impact.

**P 265 In vitro activity of tigecycline against 185 Gram-negative and Gram-positive clinical isolates from the University Hospital of Sfax**

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**Introduction:** Tigecycline, an antibiotic belonging to glycylycylcline, has shown promising in vitro activity against many common pathogens, including multidrug-resistant strains. This study aimed to evaluate the activity of tigecycline and commonly used antimicrobials against clinical strains isolated from the microbiological laboratory of the University Hospital of Sfax during 2011 between September 1<sup>st</sup> and December 31.

**Methods:** A total of 60 gram-positive and 135 gram-negative clinical isolates were tested. The MICs and microbial susceptibility were determined using the brothmicrodilution method according to Clinical Laboratory and Standards Institute (CLSI) recommendations.

**Results:** Tigecycline was active against 96% of *Enterobacteriaceae* with an MIC<sub>90</sub> of 1 µg/mL. *Acinetobacter baumannii* were also inhibited at low concentrations of tigecycline with a MIC<sub>90</sub> of 1 µg/mL. *Haemophilus influenzae* was very susceptible to tigecycline with an MIC<sub>90</sub> of only 0.12 µg/mL. *Pseudomonas aeruginosa* was the least susceptible organism tested against tigecycline with MIC<sub>90</sub> > 8 µg/mL.

Tigecycline was the most active agent tested against Gram-positive facultative species including multidrug-resistant strains. It was active against 93% of *Enterococcus* spp. and 100% of *Staphylococcus aureus* and MIC<sub>90</sub> results were 0.12 µg/mL and 0.25 µg/mL, respectively.

**Conclusion:** Our results suggest that tigecycline can be a useful therapeutic alternative, especially for infections involving multidrug-resistant bacteria especially methicillin-resistant *S. aureus* and carbapenem-resistant *A. baumannii*.

**P 266 Methicillin resistant *staphylococcus aureus* (MRSA) and enterobacteria resistant to 3<sup>rd</sup> generation cephalosporins (3<sup>rd</sup>GCRE) responsible of bacteremia at Charles Nicolle Hospital**

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**Introduction:** Multidrug resistant (MDR) bacteria are associated with high morbidity and mortality rates in bacteremia. The updating of local epidemiologic data of MDR bacteria included would be of a great help in the choice of empiric antibiotic therapy.

**Purpose:** to evaluate the place of two MDR pathogens, methicillin resistant *Staphylococcus aureus* (MRSA) and enterobacteria resistant to 3<sup>rd</sup> generation cephalosporins (3<sup>rd</sup>GCRE) in bacteremia and to study their epidemiological and bacteriological profile.

**Materials and methods:** a five year retrospective study from 2004 to 2008 was carried out at the laboratory of microbiology at Charles Nicolle Hospital. Microbial diagnosis of bacteremia was done using Bact/Alert automate system. Blood cultures were recovered from patients hospitalized in different wards. Microbial identification was performed by conventional methods and susceptibility to antibiotic by diffusion method according to CLSI guidelines. MRSA detection was done by cefoxitin disk.

**Results:** 402 MDR (47 MRSA and 355 3<sup>rd</sup>GCRE) non redundant bacteria were isolated. They represent 31.7% with an increasing trend, from 21.9% in 2004 to 35% in 2008. Methicillin resistance represent 16.3 % of all *staphylococcus aureus* and the resistance to 3<sup>rd</sup> cephalosporins generation 36.2% of all enterobacteria. Surgical departments (34.6%) and intensive care units (21.1%) were the most affected by 3<sup>rd</sup>GCRE while MRSA predominates in medical wards (46.8%). The 3<sup>rd</sup>GCRE exhibited high resistances rates to aminoglycosides (32% to 96%) and fluoroquinolones (49% to 56%), but all were sensitive to imipenem and colistin. Associated resistances rates of MRSA were high for gentamicin (60%) and fluoroquinolones (63.8%) with perfect sensitivity to glycopeptides.

**Conclusion:** MRSA and 3<sup>rd</sup>GCRE are a frequent cause of bacteremia in our hospital. Thus, epidemiological surveillance is needed to better guide empiric antibiotic therapy of these severe infections.

**P 267 Bacteriological profile of whitlow infections due to methicillin resistant *Staphylococcus aureus* (MRSA) in Mohamed Kassab Orthopedic Institute (IMKO)**

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**Introduction:** Methicillin resistant *Staphylococcus aureus* (MRSA) has long remained the only typical nosocomial pathogen but now the situation changed radically with the emergence of multiple strains of community-acquired MRSA. This spread throughout the world warrants new studies of antibiotic resistance among strains of MRSA can cause infections of skin and soft tissue infections including whitlow.

**Materials and methods:** This is a retrospective study in the laboratory of the IMKO, covering all non-repetitive strains of MRSA isolated from specimens for diagnosis of whitlow in patients hospitalized at least 24 hours from January 2009 to December 2011. Identification of strains was performed using conventional methods and the study of antibiotic susceptibility was performed by the technique of disk diffusion method as recommended by the antibiogram committee of the French Society of Microbiology (CA-SFM).

**Results:** *Staphylococcus aureus* was isolated from 337 of 759 patients with type infection whitlow (44.40 %). The prevalence of MRSA was 7.11 % (54 patients). They were 31 men and 23 women, mean age 38 years. The study of resistance of MRSA showed that for aminoglycoside, most were sensitive to gentamicin but resistant to kanamycin in 55.55 % of cases. Isolates of this sample remained largely susceptible to macrolide, trimethoprim-sulfamethoxazole, fluoroquinolone, rifampicin and fosfomycin. By cons, they were resistant to tetracycline in 88.89 % of cases and fusidic acid in 81.47% of cases. 92.59% of MRSA were PVL and a profile of 17 MRSA strains had a profile typical Clone ST80 PVL. Antibiotic therapy is not consistent with the results of sensitivity tests in 41 of 44 patients with MRSA infection who received antibiotics (93.18%).

**Conclusions:** MRSA has become a major cause of skin infections and soft tissue especially whitlow. When antimicrobial therapy is indicated for the treatment of these infections, clinicians should consider obtaining cultures and modifying empirical therapy to provide coverage of MRSA isolated.

**P 268 Antimicrobial Susceptibility Patterns of Methacillin Resistant *Staphylococcus aureus* Collected from Health Care Facilities in Libya**

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*Staphylococcus aureus* has been known to an important pathogen implicated in a wide variety of infections in the healthcare and community settings which reflects greatly on the status and quality of such settings.

**Objectives**

1- determine the prevalence of Methacillin Resistant *Staphylococcus aureus* (MRSA) and its antimicrobial patterns among different health care and community settings in Libya. 2- study genetic characteristics associated with such resistance. 3- implement proper guide lines to combat such pathogen.

**Methods:** Five hundred and eleven isolates of *Staphylococcus aureus* were collected in a year period (2009 - 2010 ) from different clinical samples at three health settings. These include 111 isolates from healthy community individuals, 234 inpatient hospitalized and 166 out patients at the four major hospitals of Tripoli; Tripoli Central Hospital Tripoli Trauma/Accident Hospital Tripoli Medical Centre and Tripoli Burn Hospital. MRSA isolates were identified and confirmed by conventional methods and their antimicrobial susceptibility were determined using ten different antimicrobials including to Vancomycin, Gentamicin and Ciprofloxacin. Genetic determinants of the strains was to be carried using SPA techniques

**Results:** indicated that the prevalence of MRSA was found to be 43% at Inpatient Healthcare Associated MRSA (IPHA-MRSA), 23% among Outpatient-Healthcare Associated MRSA (OPHA-MRSA) and 31% in Community Carried MRSA (CC-MRSA). Antimicrobial Resistance Patterns among CC-MRSA was found to be 5% resistant to Gentamicin, 16% to Ciprofloxacin, 40% with intermediate resistance to Vancomycin. In OPHA-MRSA isolates resistant to Gentamicin (16%), Ciprofloxacin (10%) and intermediate resistance to Vancomycin ( 42 %). Among INPHC-MRSA isolates, resistance to Gentamicin (43 %), to Ciprofloxacin (63%) and Vancomycin Intermediate (57% ),. All MRSA strains has shown high levels of resistance other antimicrobials with variable genetic determinants (i.e Fus A, Fus B, Fus C and SCCmec element),

**In conclusion :** The prevalence of MRSA was found to be high among the Libyan health setting particularly among inpatients. Hence then specific guide lines should be implemented to minimize such problem.

**P 269 Epidemiology and resistance to antibiotics of Methicillin-resistant *Staphylococcus aureus***

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**Introduction:** the frequency of methicillin-resistant *Staphylococcus aureus* (MRSA) infections continues to grow in hospital associated settings and more recently, in community settings. The aim of this study was to determine the epidemiology and the prevalence of antibiotic resistance of MRSA over 5 years.

**Materials and Methods:** It is a retrospective survey achieved in five years (2007 to 2011), concerning all non redundant strains isolated in the laboratory of microbiology in Farhat Hached hospital in Sousse. The isolation and identification of MRSA strains were based on conventional methods. Antibiotic resistance was determined according to the French society of microbiology (CA-SFM).

**Results:** During the period of study, 185 (12, 3%) MRSA were identified among 1499 *S.aureus* strains isolated. The prevalence of MRSA slightly decreased from 16% in 2007 to 14% in 2011. Adults aged from 18 to 60 years had the highest age-specific cumulative incidence of infection at 62%. The MRSA were isolated from pus(56,7%), blood cultures (30%), needle aspiration liquids (5,4%) and urine (4,8%). The samples came from various hospital departments: dermatology (49,7%), surgical wards (9,7%), pediatrics (7%), emergency wards (4,8%) as well as out-patients (3,8%). These MRSA strains gave rates raised of resistances to erythromycin : between 36 and 42,4%. Resistance to fluoroquinolones has increased from 9.3% to 15.6%.

**Conclusion:** The frequency of the MRSA has slightly decreased in Sousse. On the other hand, coresistance to fluoroquinolones and macrolides is worrying. It is absolutely necessary to master the diffusion of these stumps for the control of the multiresistant bacteria epidemics.

**P 270 Emergence of Methicillin –Resistant *Staphylococcus aureus* with Increasing Susceptibility to Gentamicin at the Libyan Teaching Hospitals,**

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Methicillin –resistant *Staphylococcus aureus* (MRSA) has been associated with an increased incidence of resistance to antibiotics since its early discovery. New phenotype of MRSA characterized by a heterogeneous expression of resistance to methicillin and susceptibility to various antibiotics, including gentamicin has immersed

**Objectives:** of study were to; 1- investigate the evolution of antibiotic resistant of MRSA in the Libyan hospitals 2- determine the susceptibility of gentamicin among MRSA strains 3- Study the reflection of this resistance on the out come of the clinically used antibiotics.

**Methods:** A total of 560 different clinical isolates of MRSA were collected over Five years period ( 2004 to 2008). These were isolated from different clinical sites collected from three hospitals in Tripoli-Libya. The isolates were identified and MIC were determined according to Standard Microbiology Method as well as their phenotypes.

**Results:** The overall prevalence of MRSA was found to be ( 30.3% of the isolates studied. Of these (94.7%) were GS-MRSA. The incidence of (GS- MRSA) strains was variable during the study period; 2004,(.84.6%) to (94%) in 2008 of the MRSA strains, Such patterns reflected on the antimicrobial chemotherapy used in the hospitals

**Conclusions:** the continuing emergence of GS-MRSA was found to an emerging phenomenon among Libyan hospitals and thus should be reflected to the National policy of compacting MRSA among Libyan hospitals

**P 271 Epidemiology and molecular typing of community-acquired methicillin-resistant *Staphylococcus aureus* isolated at Charles Nicolle Hospital of Tunis**

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One of the most striking developments in recent bacterial infections was the rapid emergence of community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA). This pathogen is characterized by its ability to spread rapidly and to cause morbid infections in immunocompromised or healthy individuals. CA-MRSA is phenotypically and genotypically distinct from healthcare associated MRSA. Our study aims to determine the prevalence of CA-MRSA at Charles Nicolle Hospital and to characterize their molecular pattern.

It is a prospective study conducted during 3 years (2007-2009). *S. aureus* isolates were identified using conventional methods. Antibiotics susceptibility was performed using disk diffusion method according to CLSI guidelines. *mecA* gene encoding methicillin-resistance was detected by PCR. SCC*mec* gene typing was performed by 2 multiplex PCR, one targeting the five *ccr* genes encoding recombinases and the second detects the three *mec* complexes. Subtyping of SCC*mec*



IV was monitored by multiplex PCR using specific primers to each subtype a, b, c and d. *agr* typing was determined by multiplex PCR and Panton -Valentine leukocidin gene (*luk* -PV) was revealed by PCR.

Among the 367 CA *S. aureus* infections recovered during the study period, 15 (4%) cases were caused by MRSA. The mean age of patients was 34.8 years (extreme range from 4 to 83 years) and the sex-ratio was 0.9. Infections were cutaneous abscesses (n=9), ORL (n=4), conjunctivitis (n=1) and osteomyelitis (n=1). Ten strains were simultaneously resistant to kanamycin, tetracyclines and fusidic acid. No strain was resistant to glycopeptides. All isolates harbored *mecA* and *SCCmecIVc*. *agr* group III was the most frequent (n=11), followed by *agr* group I (n=3) and *agr* group II (n=1). *luk*-PV was found in 7 strains.

CA-MRSA rate is still low in our area. However, this pathogen represents a new threat to public health in Tunisia, warranting close monitoring during next years.

**P272 Activity of vancomycin, teicoplanin and linezolid against *Staphylococcus aureus* strains incuding MRSA in Sfax university hospital (Tunisia)**

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Glycopeptides has been the most reliable therapeutic agent against methicillin-resistant *Staphylococcus aureus* (MRSA) for the past 3 decades. However due to the rise in MRSA infections and widespread use of vancomycin, MRSA strains with reduced susceptibility to glycopeptides (GISA) are emerging.

The purpose of this study is to determine the susceptibility of vancomycin, teicoplanin and linezolid against *S. aureus* strains.

This prospective study was conducted in the laboratory of microbiology of Sfax (Tunisia) from March to September 2011. Susceptibility of *S. aureus* strains to antibiotics was realized by disc diffusion methods and MICs of vancomycin, teicoplanin and linezolid were measured by broth microdilution. For the detection of Heterogeneous Vancomycin-Intermediate *S. aureus* (hVISA), the E-test macromethod was performed.

200 clinical strains of *S. aureus* were collected during the period of study: 158 (79%) were methicillin susceptible (MSSA) and 42 (21%) were MRSA. This isolates were recovered from various clinical sources. By disc diffusion method, all of these strains were susceptible to vancomycin, teicoplanin and linezolid. According to the criteria of the CA-SFM, all of the MSSA were susceptible to vancomycin, teicoplanin and linezolid. The MIC range was 0.125- 1mg/L for vancomycin, 0.125-2 mg/L for teicoplanin and 0.5-4 mg/L for linezolid. The MIC range for MRSA strains was 0.5-

1mg/L for vancomycin, 0.25-4 mg/L for teicoplanin and 0.5 -4 mg/L for linezolid. One strain isolated from blood culture was classified GISA: vancomycin MIC = 1 mg/L and teicoplanin MIC = 4 mg/L. according to the criteria of the CLSI, this strain was classified susceptible to glycopeptides. However it is identified as hVISA by E-test macromethod: vancomycin MIC = 2 mg/l, and teicoplanin MIC = 24 mg/L. This is the first report of GISA in our hospital. Although their prevalence is low (0.05% among *S. aureus* and 2.3% among MRSA), a continuous surveillance of susceptibility to glycopeptides is necessary particularly among MRSA strains.

**P273 Antibiotic susceptibility pattern of *S. epidermidis* isolated at Charles Nicolle hospital of Tunis (2002-2011)**

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*S. epidermidis* is among the most common Gram positive bacteria that cause nosocomial infections due to the increase of use of biomaterials in clinical environment. Our study aims to evaluate the rate of resistance to the commonly used families of antibiotics and seek a change in these rates during the study period. All *S. epidermidis* isolated at Charles Nicolle hospital of Tunis, between January 2002 and December 2011, were investigated. They were identified by conventional methods and their antibiotic susceptibility was performed using the disk diffusion method according to the Clinical Laboratory Standard Institute guidelines.

Overall, 855 non duplicated *S. epidermidis* strains were isolated from different specimens. They were mainly recovered from urology (16%), followed by medicine (15.8%), pediatrics (13.5%) and neonatology (7.4%). They were mainly isolated from blood (42.9%), urine (30.2%), fluid puncture (6.9%) and materials (1.2%).

Isolates of *S. epidermidis* showed multidrug resistance as follows penicillins (92.6%), oxacillin (37%), gentamicin (27.3%), erythromycin (50.7%), clindamycin (15.1%), tetracyclines (41.5%), trimethoprim-sulfamethoxazole (29.5%), fusidic acid (45.5%), ofloxacin (24.7%), rifampicin (25.8%) and fosfomicin (33.1%). No isolates was resistant to pristinamycin and glycopeptides. The highest rate of methicillin-resistant *S. epidermidis* (MRSE) was observed in blood samples with 45.5%. The annual rate of MRSE increased from 26.3% in 2002 to 52.6% in 2011. The rates of antibiotic resistance were far

higher among MRSE isolates than among methicillin-susceptible *S. epidermidis* isolates.

In our hospital there is a progressive increase in MRSE prevalence and glycopeptides remain as last line of drugs to treat nosocomial *S. epidermidis* infections. Further use of molecular studies to monitor the epidemiology of MRSE is highly recommended.

**P 274 Epidemiology and antimicrobial resistance of *Streptococcus pneumoniae* in the center of Tunisia**

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**Introduction:** *Streptococcus pneumoniae* is a significant bacterial cause of community-acquired pneumonia, meningitis, and bacteremia. Antibacterial resistance in *S. pneumoniae* is increasing worldwide, affecting principally beta-lactams, macrolides and fluoroquinolones. The aim of this study was to determine the epidemiology and the prevalence of antibiotic resistance of *S. pneumoniae* over 5 years.

**Materials and Methods:** between 2007 and 2011, 164 strains of *Streptococcus pneumoniae* were collected and analyzed in the laboratory of microbiology of Farhat hached hospital (Sousse). The isolation and the identification of *S. pneumoniae* strains were based on conventional methods. Antibiotic resistance was determined according to the French society of microbiology (CA-SFM).

**Results:** During the period of study, 164 *S. pneumoniae* strains were identified. The total incidence of infections was slightly increased between 2007 (17,6 %) and 2011 (20,1%). Patients aged less than 2 years and over 65 years have the highest age-specific cumulative incidence of infection respectively 36, 5% and 31%.

*S. pneumoniae* strains were isolated from blood cultures (28%), Sputum swabs (20%), cerebrospinal fluid (22,5%), middle ear fluid (9,7%) and pleural fluid (11,5%). The samples came from various hospital departments specifically pediatrics (40%).

Penicillin resistance increased from 12 % to 24%. Resistance to erythromycin is reported in approximately 39% of isolates with an increase from 36% to 42,4% over 5 years. Resistance to fluoroquinolones increased up from 6% to 38% in 2011. No glycopeptide resistance was noted.

**Conclusion:** Beta-lactams, macrolides and fluoroquinolones resistances in *S. pneumoniae* were increasing, however glycopeptides kept their best activity.

**P 275 Penicillin Binding Protein 1A, 2B and 2X alterations in Tunisian isolates of *Streptococcus pneumoniae***

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In recent years there has been a dramatic increase, worldwide, in the prevalence of penicillin resistant *Streptococcus pneumoniae* (PRSP). This resistance is mediated by a mosaic of genes encoding altered penicillin-binding proteins (PBPs). The PBP active cavity is formed by 3 conserved amino acids SXXK, SXN and KT(S)G. Alterations within or in positions flanking these motifs reduce the affinities to  $\beta$ -lactam antibiotics resulting in resistance. PBP1a, PBP2b and PBP2x are the most often associated with  $\beta$ -lactam resistance. The purpose of this study was to analyse the DNA sequence of *pbp2x*, *pbp2b* and *pbp1a* genes of 15 *S. pneumoniae*, isolated in Tunisia. Strains were selected on the basis of their penicillin G MICs, 5 penicillin susceptible *S. pneumoniae* (PSSP) (MIC  $\leq$  0.06  $\mu$ g/mL), 5 isolates intermediate (PISP) (MIC=0.12-1  $\mu$ g/mL) and 5 resistant (PRSP) (MIC  $\geq$  2  $\mu$ g/mL). There were no changes in the conserved motifs for PSSP. While, for PISP and PRSP, 2 PBP2X, 1 PBP2B and 1 PBP1A sequence variants were found. They were identical to those identified earlier. All strains have T<sub>371</sub>→A substitution in the STMK motif of PBP1A and no changes in the other two PBP1A motifs. The STMK motif of PBP2X showed T<sub>338</sub>→A substitution in 4 PISP and in all PRSP strains. One PISP and all PRSP have L<sub>546</sub>→V substitution in the amino acid before the KSG motif of PBP2x. In all PISP and PRSP strains, the only change found in the motif of PBP2B was T<sub>456</sub>→A substitution in the position following the central SSN motif.

PBP gene sequences of Tunisian *S. pneumoniae* isolates were similar to previously described sequences. However, the changes found in the PBP active binding sites of our strains is not correlated with penicillin resistance level.

**P 276 *emm* typing of group A *Streptococcus* clinical isolates in Tunisia**

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*Streptococcus pyogenes* or group A *Streptococcus* (GAS) is one of the most common human pathogens causing a wide variety of diseases ranging from mild pharyngitis and impetigo to severe invasive infections. It can also lead to serious non-suppurative sequelae, including acute rheumatic fever and acute glomerulonephritis.

In the late 1980s, a recrudescence of invasive *S. pyogenes* infections was reported; however, the factors underlying the worldwide resurgence of this pathogen remain unknown. The M protein, which is encoded by the *emm* gene, is an important virulence factor and is also an epidemiological marker that is used to characterize GAS isolates.

To further understand the epidemiology of this important pathogen in a country where rheumatic fever is still common, we accessed the *emm* distribution among GAS strains isolated at Charles Nicolle hospital of Tunis during a 12 year period.

From January 2000 to January 2011, a total of 148 non duplicated strains collected at the laboratory of Microbiology of Charles Nicolle University Hospital of Tunis, were investigated. They were recovered mainly from upper respiratory tract (34%), cutaneous pus (33%) and blood (12%). All isolates were identified by conventional methods and specific agglutination grouping. Biotyping was carried out using ID 32 STREP Api test. The *emm* types were determined by sequencing the variable 5'-end of the *emm* gene after amplification by PCR.

Among the 148 isolates, 6 different biotypes were found. Biotype 3 was the most common (56%). 47 different *emm* types were identified, the most predominant were *emm118*, *emm42*, *emm1* (7.4% each) followed by *std432*, *emm7*, *emm12* (4.7% each) and *emm28*, *emm106* and *emm83* (4% each).

These data, showing a heterogeneous GAS population, will be useful for the development of an appropriate vaccine in our country.

**P 277 Epidemiology and *emm* types of Group A *Streptococcus* causing invasive and non invasive infections in Sfax (Tunisia), 2007-2011**

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Group A *streptococcus* (GAS) causes a wide range of illnesses ranging from non invasive such as pharyngitis,

to invasive such as necrotizing fasciitis and bacteremia. The M protein, major virulence factor of GAS, is encoded by the *emm* gene. *Emm* typing constitutes the main molecular and epidemiological markers.

In this study we describe the epidemiological characteristics of GAS infections diagnosed in Sfax university hospital.

This retrospective study was carried out in the laboratory of microbiology of Habib Bourguiba university Hospital (Sfax, Tunisia) during five years (2007-2011). We reviewed data on case patients from whom GAS-positive specimens were obtained. *Emm* typing was performed on the basis of sequencing of the variable region of the *emm* gene.

Two hundred ninety-one strains of GAS were collected from 282 patients. 154 strains (54.6%) were isolated from patients with invasive infections and 128 (45.4%) from non invasive cases. Bacteremia was the most frequent clinical manifestation of invasive cases: 21.4%. The main source of isolation of non invasive isolates was pus (71.1%). The mean age of patients was 40.4 years. 75 % of patients aged > 66 years developed invasive infection. Underlying disease was found in 20.8% of patients with invasive infections versus 11.7% in the non invasive group. Twenty two different *emm* types were observed. In both invasive and non invasive isolates, *emm81* (14.8%), *emm104* (9.2%), *emm108* (9.2%), *emm87* (7.4%) and *emm1* (7.4%) were the most prevalent types. *Emm78*, *emm81*, *emm104*, *emm1* and *emm90* were mainly observed among invasive infections (61.4%). However, *emm81*, *emm108* and *emm87* were predominant among non invasive infections.

All of the strains were susceptible to  $\beta$ - lactams, fluoroquinolone, pristinamycine, vancomycine and teicoplanin. No high level of resistance to gentamicin was found. 83.7% were resistant to tetracycline and 1% were resistant to erythromycin.

In our study, > 50% of GAS strains was responsible of invasive infections. Knowledge of the distribution of *emm* types responsible for both invasive and non invasive infection has important implications for the development and formulation of GAS vaccines in our country.

**P 278 Association between virulence factors and antibiotic resistance in *Enterococcus faecium* at the National Center of Bone Marrow Transplantation in Tunis**

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**Introduction:** Enterococci are commensal bacteria of the gastrointestinal tract, generally regarded as species of restricted virulence, may nevertheless be responsible for



serious infections particularly in neutropenic patients. In this work we report the relationship between virulence factors and antibiotic resistance of *Enterococcus faecium* (*E. faecium*) of our oncohaematology patients.

**Material and Methods:** Two hundred thirty-two non repetitive *E. faecium* strains isolated at the National Center of Bone Marrow Transplantation of Tunis over a period of 4 years (2006-2009) and mainly from stool cultures (97,4%). Bacterial identification was performed by Api 20 Strep and PCR simplex of the *ddl faecium* gene. Study of antibiotic sensitivity was performed by diffusion method on agar medium according to CA-SFM recommendations. Search for virulence genes *esp* (surface protein) and *hyl* (hyaluronidase) was made by PCR amplification.

**Results:** Our strains were high-level resistant to gentamicin in 41.8% and to ampicillin in 59.5% of cases. No strain was resistant to glycopeptides. The *esp* gene was amplified in 57 strains, 54 ampicillin-resistant and 52 high-level resistant to gentamicin. The *hyl* gene was amplified in 28 strains including 24 resistant to ampicillin and 16 high-level resistant to gentamicin. A significant association was found between the presence of virulence genes *esp* or *hyl* and resistance to ampicillin, respectively ( $p < 0.0001$ ) and ( $p < 0.005$ ). Whereas, only the presence of the *esp* gene was significantly associated to high level resistance to gentamicin ( $p < 0.0001$ )

**Conclusion:** It appears from this work a high frequency of resistance of our *E. faecium* strains to ampicillin and gentamicin and a significant association between the presence of virulence genes *esp* or *hyl* and resistance to ampicillin.

#### P 279 Phenotypic and genotypic identification of Gram negative bacilli responsible for nosocomial pneumonia in Algeria

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**Introduction:** Nosocomial infections are particularly common in patients hospitalized in intensive care compared to other sectors of care. Nosocomial pneumonia is the leading cause of nosocomial infection in intensive care units ; they are related to artificial ventilation. The bacteria responsible for nosocomial infections during mechanical ventilation are essentially Gram negative bacilli: *Acinetobacter baumannii* and Enterobacteriaceae

**Objective:** Evaluate the rate of antibiotic resistance among strains of *Acinetobacter baumannii* and Enterobacteriaceae responsible for pneumonia by phenotypic and genotypic technical

**Methods:** 23 strains of *Acinetobacter baumannii* and 18 strains of Enterobacteriaceae (*Escherichia coli*, *Klebsiella pneumoniae* and *Enterobacter cloacea*) were isolated in the microbiology laboratory of teaching university Hospital, Dr Dorban Annaba, Algeria between January 2010 and May 2011. Antibiotics susceptibility testing was performed by the disk diffusion method, and agar dilution technique to determinate the inhibitory concentration (MIC) of resistant strains.  $\beta$ -lactamase genes of Ambler class A and D (*bla*<sub>OXA-23</sub>, *bla*<sub>OXA-24</sub>, *bla*<sub>OXA-58</sub>, *bla*<sub>OXA-51</sub>, *bla*<sub>TEM</sub>, *bla*<sub>SHV</sub>, *bla*<sub>CTX-M</sub>, *bla*<sub>PER</sub>) were searched by PCR and sequenced. The determination of clonal relationships between strains was performed by pulsed field gel electrophoresis (PFGE) after macro-restriction by APAL enzyme

**Results:** All strains showed a high level of resistance to all antibiotics tested mainly  $\beta$ -lactams, the sequencing of amplification products of *bla* genes showed the presence of BLSEs gene CTX-M15 and SHV-12 among our strains of Enterobacteriaceae and OXA-23 and TEM-1 in strains of *A. baumannii*

**Conclusion:** It is important to control the evolution of the spread of bacterial resistance and use of  $\beta$ -lactams mainly carbapenems in the antibiotic therapy in the various Algerian hospitals and take preventive measures to limit this epidemic.

#### P 280 Bacteriological profile of nosocomial infection by Gram-negative bacteria in pediatric wards at the Beni-Messous hospital in Algiers, Algeria.

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**Introduction :** Nosocomial infections are a major public health problem due to costs as well as morbidity and mortality they cause, the increased frequency of these infections in pediatrics is explained by immunosuppression, especially in the newborn and the increased use of technicals and procedures for invasive care in this age group. Some Gram-negative bacteria, are often responsible for infections caused by multiresistant strains. The study of bacterial resistance to antibiotics is an important prerequisite for understanding the evolution in space and time of this resistance, for better care for patients and for developing new antibacterial drugs.

**Objectif and Methods :** The objective of this study is to

isolate the different Gram-negative bacteria in different pathologic swabs responsible for nosocomial infections and antibiotic resistance in different pediatric wards: Neonatology, General Pediatrics and Surgery Pediatric at the Beni-Messous Hospital in Algiers, Algeria.

**Resultat and Conclusion :** During this study between October 2010 and June 2011, we isolated 206 strains. In order of decreasing frequency, the organisms isolated are: *Enterobacteriaceae*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. Most of the strains were isolated in general pediatrics, 42 cases in surgery pediatric and 38 cases in neonatology. The majority of swabs we isolated these strains are urine and pus. The study of the sensibility of these strains to Broad-Spectrum  $\beta$ -lactamase is select 47 strains resistant to these molecules, which give a rate of 22.8%. Among these strains, 41 *Enterobacteriaceae*, 04 *Pseudomonas aeruginosa* and 02 *Acinetobacter baumannii*. 33 resistant strains were isolated in general pediatric, 10 in surgery pediatric and 04 in neonatology. The high resistance can be explained by the prior antibiotic treatment based on  $\beta$ -lactamase antibiotics administered to 47 patients. The failure of this antibiotic leads to death of 14.8% of cases. The majority of *Enterobacteriaceae* strains are producing of extended spectrum beta-lactamase (ESBL) with 76.5%, and two strains of *A. baumannii* are producing of carbapenemases.

#### P 281 Epidemiology of bloodstream infections in Sfax-Tunisia

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**Introduction:** Bloodstream infections (BSI) are a serious cause of morbidity and mortality worldwide. Emerging antimicrobial drug resistance among bacterial pathogens causing BSI can limit therapeutic options and complicate patient management.

Early detection of pathogens and determination of their susceptibility are essential for the optimization of treatment. Variability between hospitals is substantial and requires the individual analysis of local trends.

**Objective:** The aim of this study was to assess the local epidemiology of BSI in the two university hospitals of Sfax-Tunisia

**Methods:** We included all positive blood cultures identified in the laboratory of Microbiology of Habib Bourguiba hospital during 2011. For every positive blood culture, we collected clinical and microbiological data.

**Results:** A total of 548 episodes of BSI occurred in 498 patients, with 4.7 % (n = 26) of episodes being polymicrobial. Of 576 causative organisms, aerobic

Gram-negative bacteria were 77% (n =441) including 305 *Enterobacteriaceae*, whereas Gram-positives accounted for 23 % (n = 135). The most prevalent agents were *Klebsiella pneumoniae* (22%), *Escherichia coli* (12.3%), *Staphylococcus aureus* (11.6%), *Pseudomonas aeruginosa* (7.6%), *Enterococcus* spp. (5.3%) and *Acinetobacter baumannii* (5.2%) and *Stenotrophomonas maltophilia* (5.3%). Isolates recovered from patients admitted to medical, surgical, and intensive care units accounted for 64%, 6%, and 30% of cases, respectively. 345 BSI (63%) were hospital-acquired, 193 (35%) were community-acquired, and 10 (2%) were health care-associated. Organisms causing the majority of nosocomial bloodstream infections are *K. pneumoniae*, *P. aeruginosa* and *A. baumannii*. *E. coli*, *S. aureus* and *Streptococcus pneumoniae* are most frequently isolated in community-acquired BSI. The main sources of BSI are: urinary, cutaneous, pulmonary, digestive and central catheter. Of 305 *Enterobacteriaceae* isolates, 37% were resistant to ceftazidime and 30% were ESBL producing. 22% of *S. aureus* isolates were methicillin-resistant. Septic shock was complicating 17% of BSI and the mortality rate was 16%.

**Conclusion:** Compared with other studies, our data show an important role of Gram-negative bacteria among both hospital- and community-acquired blood isolates. Empirical antibiotic therapy should take into account the epidemiologic characteristics of our region especially the high rate of resistance to extended-spectrum cephalosporins of *Enterobacteriaceae*.

#### P 282 Nosocomial infection in neonatal intensive care unit in Monastir (Tunisia)

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**Introduction:** Nosocomial infections are an important and critical issue related to high morbidity and mortality in high risk neonates. The aim of our work was to study epidemiology and risk factors of nosocomial bacterial infections in the department of newborn intensive care unit (NICU) of Monastir.

**Methods:** A retrospective study was conducted from June 2009 to June 2010. All hospitalized newborn in the department were included (3.700 newborns). Centers of disease control (CDC) criteria were applied for nosocomial infections diagnosis. Data were analyzed with descriptive statistics.

**Results:** 70 patients presented with 80 nosocomial bacterial infections. Nine presented with two infections and one patient had three nosocomial infections. The

incidence and the density incidence rates were 3% and 6 per 1000 patient-days, respectively. Male predominance was noted (sex ratio = 2). Ninety per cent of patients with nosocomial infections were admitted in NICU. Prematurity was noted in 76 % of cases (44% were less than 32 weeks gestation). During the study, 12% of all hospitalized prematures have had bacterial nosocomial infections. Nosocomial infections newborns concerned very low birth weight in 56% of cases. 65% of patients were on mechanical ventilation and 62% have central venous line. The delay from admission to the development of infection was 8 days. Multiresistant bacteria were isolated in 60% of cases dominated by *Klebsiella pneumoniae* (90%). Infections sites were principally bloodstream infection (51%), followed by digestive infection (11%) and pneumonia (8%). The most common complications were septic choc (32%) and hemorrhagic syndrome (22%). Mortality rate was 55%. **Conclusion:** Blood stream was the most common site of bacterial nosocomial infection in our center. *K. pneumoniae* is the predominant bacteria. Low birth weight, prematurity, central venous line and mechanical ventilation are the most important risk factors of neonatal nosocomial infections in our NICU.

**P 283 Nosocomial urinary tract infection: prospective study in a medical intensive care unit on the west of Algeria.**

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The nosocomial urinary tract infection is the most common nosocomial infections. It is an important risk in hospitals in terms of cost and management.

The objective of our work is to study the characteristics of nosocomial urinary tract infection in the intensive care unit of Tlemcen Hospital University.

The study has involved 20 adult patients whose average age is 52.8 years. Factors favoring were dominated by the urinary catheter open, duration and mode of hospitalization and certain diseases such as diabetes. The flora of nosocomial urinary catheter is dominated by coagulase-negative staphylococci resistant to oxacillin. Catheter-associated urinary tract infections reflect the general hygiene policy, starting with nurse practice patterns at catheter insertion, and ending with antibiotherapy prescriptions by medical staff.

**P 284 Hand carriage of yeasts among health care workers in intensive care units at University Hospital Habib Bourguiba of Sfax (Tunisia)**

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**Introduction:** Many recent studies have shown that the proportion of infections hand-carried was more over than half of healthcare associated infections (> 50%).

The aim of our work was to study the yeast hand carriage among personnel (medical, paramedical, and administrative workers) in the burn unit, the medical ICU and surgical ICU of UH Habib Bourguiba of Sfax, and to draw attention to the relationship between yeasts hand carriage among personnel, fungal colonization and infection of patients.

**Material and methods:** Samples were collected from the hands of 62 hospital personnel during a period of 15 days. The hands of all participants were tested by culture with broth wash technique.

**Result:** Overall, 62,9% of tested people were found to harbour yeast on their hand (65,4% of surgical ICU personnel, 87,5% of the burn unit and 53,6% of the medical intensive care unit). Carriage of yeasts was significantly higher in nurses than doctors (p <0.05). Before washing hands, isolated *Candida* species were: *C.tropicalis* (33%), *C. albicans* (24%), *C.famata* (7%) *C. parapsilosis* (5%), *C. krusei* (2%), *C. lusitaniae* (2%), *C.glabrata* (2%). *Cryptococcus laurentii*, *Pichia etchellsii* and *Trichosporon sp* were also isolated in respectively 14%, 7% and 5%.

The hygienic hand washing using liquid soap antiseptic appears to reduce hand carriage of yeast more than the simple washing with a significant difference (p <0,01). Only *C.tropicalis*, *C. albicans*, *C. parapsilosis* and *C.glabrata* were found in patients hospitalized during the study period, from urine, mouth, nose, external ear, and stool... No systemic candidiasis was diagnosed during this period.

**Conclusion:** Yeast hand carriage of health care workers may be a predisposing condition for healthcare-associated infection transmitted with hands of HCWs to severely ill patients. A genotypic study is needed to confirm the personnel-patient cross-transmission by hands. Hospital personnel should be educated for regular hand washing practice.



**P 285 Evaluation of bacterial contamination level of catheters in Pierre and Marie Curie center at algiers**

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A study to assess the level of bacterial contamination of intravenous devices in patients with cancer was conducted over a period of one year (2010-2011) at the Centre of Pierre and Marie Curie at Algiers. Of 81 devices tested, 44.5% gave a positive culture of which 95% were mono-microbial, with a predominance of peripheral catheters (77%) compared to central catheters (23%). The Gram + Cocci predominated (73%), they divided into negative coagulase Staphylococci (NCS) (95.09%) and *Staphylococcus aureus* (4.90%). The Gram - bacilli (GNB) (27%) were identified as *Citrobacter* spp., *Enterobacter cloacae*, *E. coli*, *K. pneumoniae*, *P. mirabilis* for fermentative (48.64%) and as *Acinetobacter* sp. and *Pseudomonas aeruginosa* for non-fermentative (51.35%). The units concerned by these contaminations are in descending order hematology (31.16%), intensive care (8.21%), bone marrow transplant (3.42%), oncology (1.36%) and women-surgery (0.34%).

The results of antibiotic susceptibility showed a multidrug resistance among GNB, including *Acinetobacter* sp., with 25% of resistance to imipenem, 31.25% to fluoroquinolones and 75% to aminoglycosides. Similarly, multidrug resistance was also the feature with Enterobacteriaceae, 50% were ESBL producers. The CNS showed a high rate of resistance to methicillin (58.76%) compared to *S. aureus* (20%). The CNS were resistant to aminoglycosides with a rate of 89.68%, while the *S. aureus* were fully susceptible.

Invasive devices like catheters are often a starting point for infections, especially when they are contaminated with germs having the ability to form biofilms.

**P 286 Severe peritonitis in surgical intensive care unit: epidemiological, clinical, etiological, therapeutic and prognostic**

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**Introduction:** Peritonitis frequent and severe disease characterized by a significant morbidity and mortality despite improved surgical techniques and intensive care. The aim of our study is to analyze the epidemiological,

clinical, etiological, therapeutic and prognostic factors of severe peritonitis in intensive care.

**Materials and methods:** Prospective study over a period of 5 years (2005-2010). Inclusion criteria were: severe peritonitis all regardless of age, sex and etiology. Were excluded from all sepsis from outside the digestive tract. The severity criteria were: presence of severe sepsis, septic shock or multi-visceral failure.

**Results:** 106 patients were identified. The average age was 48 years, the sex ratio is 1.56 H/F. All patients were from abdominal surgery. Risk factors are dominated by peritoneal: septic emergency surgery and the difficulties of surgery in 35% of cases, and perforation of viscera in 30.7% of cases. The general risk factors found were: malnutrition (32%), immunosuppression (16%), prolonged stay in ICU (14%), an earlier ATB (42%) and prior surgery (75%). Nosocomial peritonitis accounted for 19% of cases (2/3 of postoperative peritonitis), the community 78% and 3% post-traumatic. The therapeutic approach was based on: empirical antibiotic therapy modified according to the antibiogram. The surgical procedures were: eradication of the infectious focus in 42% of cases, digestive resection in 22% of cases, drainage of cavities in 72% of cases, externalizing (stoma) in 39% of cases. Mortality was about 21% of cases. The causes of death were: septic shock (52%), ARDS (11%), severe sepsis (3%), cardiogenic shock (21%). The duration of ICU stay was less than 5 days in 56% of cases. Prognostic factors that influenced mortality were age > 40 years (p = 0.01), the time of diagnosis (phase state: p = 0.02), severity of sepsis at admission (p = 0.00001), Apache II scores and higher SAPS II (p = 0.01), length of stay < 5 days (p = 0.001), organ failure (p = 0.0002), the use of catecholamines (p = 0.01), inappropriate antibiotic therapy (p = 0.04) and type of ostomy surgery (p = 0.04)

**Discussion:** The mortality of severe peritonitis in ICU remains high in our study (21%) and in the literature (30-70%). It has not changed in recent years despite advances in resuscitation and surgery. In our study, over 70% of patients are seen at the stage of state which imposes a very early diagnosis and proper medical co-radiosurgical.

**P 287 Encapsulated peritonitis: complication to be feared during peritoneal dialysis**

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**Introduction:** dialysis fluid Infection remains one of the principal complication of peritoneal dialysis (PD). The frequent use of inert material such as PD catheter,

promotes the formation of biofilm on the material. From this biofilm bacteria can be dispersed into the body and cause serious septic states, such as peritonitis. We report the case of a patient with peritoneal dialysis fluid infection that was complicated by encapsulated peritonitis.

**Observation:** it is about a 41 years old woman, chronic renal failure at final stage. She is under PD since 2009. She was hospitalized in September 2011 for abdominal pain and fever. Physical examination noted a temperature of 38° C, with a good hemodynamic status. Abdominal palpation found a diffuse sensitivity. Biologically, inflammatory syndrome was noted (CRP = 280 mg/l). The dialysate fluid (DF) examination was cloudy, contain 150 WBC /mm<sup>3</sup> with a negative culture. Abdominal Computed Tomography (CT) showed moderate abundant intraperitoneal effusion (IPE) without sign of peritonitis. The patient underwent a PD catheter removal, a confection of an arteriovenous fistula and a passage in hemodialysis. She was treated with tigecycline at the dose of 50 mgx2 /day for 6 weeks. The initial evolution was favorable clinically and biologically. However after 29 days of antibiotic therapy, the patient presented an abdominal pain and new increase of CRP to 90 mg/l. Control abdominal CT showed an effusion partitioned. A new examination of (DF) showed 350 WCB/mm<sup>3</sup> ?, without identification of microorganism. The patient was operated by coelioscopy. The intraoperative diagnosis of encapsulated peritonitis was identified and confirmed by histological examination.

**Conclusion:** Peritonitis remains a major complication of PD. It is associated with a great number of hospitalization. It is essential to take charge early any infection of the peritoneal fluid to prevent this complication

#### **P 288 Antibiotic prophylaxis in gastrointestinal surgery: auditing practices**

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Infections related to the surgery are a major cause of morbidity, and increased postoperative mortality. The aim of antibiotic prophylaxis (ABP) is to oppose the proliferation of bacteria to reduce the risk of infection from the site of surgery. Modalities (choice of molecules, administration...) are being validated recommendations, but implementation remains imperfect.

The objective of this study is to allow anesthesiologists to assess their practice in relation to existing repositories.

**Materials and methods:** 100 surgery interventions during six months (July – December 2011), corresponding to Altemeier 1 and 2 (for which the French Society of Anesthesia and Intensive Care (SFAR)

was established recommendations) have been object of analysis. The parameters analyzed were: indication, the nature of the molecule, the time of administration and duration of treatment.

**Results:** Antibiotic prophylaxis was prescribed in 85% of cases, with a compliance rate of 65% the indication. For antibiotic prophylaxis actually made, compliance with recommendations was for the nature of the product of 72.8%, and for the time of administration of 35%. Among patients who did not receive the recommended molecule, 76% had received a molecule whose spectrum of activity was broader than that of the molecule recommended. The duration was excessive in 5 cases. Overall compliance was 54%.

**Conclusion:** The antibiotic recommendations are imperfectly applied. They should be much better respected and conduct audits of successive practices must be part of the activity of the operational teams to fight against nosocomial infections.

#### **P 289 Does selective digestive decontamination prevent ventilator-associated pneumonia in trauma patients ?**

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**Introduction:** Ventilator-associated pneumonia (VAP) is common in trauma patients. Data about preventing this nosocomial event with selective digestive contamination (SDD) are conflicting. The aim of our study is to evaluate the impact of SDD on VAP incidence in trauma patients.

**Design:** Prospective randomized, double blinded study conducted over 4 months period. We included all trauma patients, aged over 15 years. Patients received since their first 24hours of intubation a solution of either a placebo or SDD (vancomycin, colistin and amphotericin B). The solution is administered four times a day orally and/or through a gastric tube for a projected duration of 7 days. Patients were randomized into 4 groups:

*Group A:* Placebo orally and through the gastric tube.

*Group B:* SDD orally and through the gastric tube

*Group C :* SDD through the gastric tube + oral placebo

*Group D:* Oral SDD + Placebo through the gastric tube.

**Results:** 44 patients were included (11 in the group A, 13 in the group B, 9 in the group C and 11 in the group D). Mean age was de 38 ± 18 years. Sex-ratio was 6.3. Mean Glasgow Coma Scale was 9 ± 3. VAP were diagnosed in 16 patients (36.4 %) within 12 ± 10 days of mechanical ventilation. VAP incidence in the placebo group (A) was 46.2 %. Compared with the placebo group, No significant difference was found with the other groups: VAP incidence was 45.5 % in the group B (p = 0.973), 22.2 % in the group C (p=0.251) and 27.3 % in the group

D ( $p=0.342$ ). ICU length of stay was  $17.2 \pm 13.3$  days. Mortality rate was de 31.8 %.

**Conclusion:** SDD didn't significantly reduce VAP incidence in trauma patients. Its impact on bacterial resistance should be assessed.

**P 290 Predictive factors and prognosis impact of ventilator-Associated Pneumonia in trauma patients with open tracheotomy**

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**Introduction:** Tracheotomy can be indicated in severely injured patients with prolonged ventilation. Ventilator-associated pneumonia (VAP) is one of the most threatening nosocomial infections in these patients. The aim of our study is to assess the predictive factors of VAP occurrence in trauma patients needing tracheotomy during their ICU stay.

**Design:** We conducted an observational, prospective study. All trauma patients, older than 15 years, undergoing open tracheotomy during their ICU stay were included.

**Results:** We included 106 patients. Mean age was  $37.9 \pm 15.5$  years. Mean GCS was  $8.5 \pm 3.7$ . Tracheotomy was performed for 53 patients (50 %) because of prolonged ventilation whereas 83 patients (78.3 %) had tracheotomy because of projected long mechanical ventilation. For 31 patients (29.2 %), tracheotomy was indicated because either weaning difficulties or extubation failure. Tracheotomy was performed within  $8.6 \pm 5.3$  days. Immediate complications were bleeding events (22.6 %) and barotrauma (0.9 %). Late complications were stomal infection (28.3 %) and ventilator-associated pneumonia (VAP) (52.8 %). Independent factors predicting VAP onset after tracheotomy were stomal infection (OR = 3.33; CI95% [1.21-9.16];  $p = 0.02$ ) and bleeding events due to tracheotomy (OR = 3.13; CI95% [1.01-9.76];  $p = 0.049$ ). VAP was associated to longer mechanical ventilation duration regarding tracheotomy ( $10.8 \pm 12.5$  days Vs  $5.9 \pm 6.9$  days;  $p = 0.037$ ) and longer ICU length of stay ( $31.9 \pm 18.5$  days and  $23.3 \pm 12.5$  days;  $p = 0.01$ ). Thirty three patients died in ICU (31.1 %) without significant impact of VAP on mortality.

**Conclusion:** Bleeding events and stomal infection are independent factors predicting VAP onset after open tracheotomy in trauma patients. The occurrence of VAP prolongs mechanical ventilation duration and ICU LOS but doesn't increase mortality.

**P 291 The gloves used differently in the ICU**

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**Introduction:** The use of disposable gloves is recommended when contaminant care. While the impact of hand hygiene opportunities is highest in intensive care, intensive care is that the observance of hand hygiene is the lowest.

The objective of our work is to verify whether the use of gloves in the ICU was also different from that observed in other services.

**Materials and Methods:** An audit observation conducted during one week in five departments of the hospital Tahar Sfar (a surgical ICU and four surgical wards). The frequency of gloves (PG) was measured each time an opportunity for hand hygiene (with or without gloves) was observed. All occupational categories were included and the nature of the observed gestures were noted (cutaneous and mucosal contact, non-invasive, invasive contacts, manipulation of medical devices, contacts with the environment). Wearing gloves was appropriate where 1) direct contact with a patient in isolation tank, 2) handling sharp objects cutting edge 3) risk of contact with blood or body fluids and 4) handling of linen or contaminated equipment, manipulation of biological samples.

The following rates have been calculated: Compliance rate of PG = (number of contacts observed with PG / total number of contacts with indication of PG); noncompliance rate of PG = (number of contacts observed with PG / total number of contacts no indication of PG); rate of correct use of gloves = (number of PG correct / total number of contact with PG). A PG right was defined by placing the gloves just before contact, for a single contact and withdrawn just after the contact.

**Results:** 1128 hand hygiene opportunities which 428 (37.9%) in intensive care, were observed. The medical and paramedical personnel accounted for 15% and 85% of the observations. Among the 1128 contacts, 781 (69.3%) required the use of gloves. The compliance rate of PG was 89% (85.6% in intensive care, surgery in 91%,  $p = 0.9$ ). The rate of non-compliance of PG was 21% (39% in intensive care, 18% in surgery,  $p < .001$ ). The rate of correct use of gloves was 72% (69% in intensive care, 71% in medicine,  $p = 0.04$ ). This was due to incorrect use use the same gloves for multiple contacts, or disposal too late for them.

**Conclusion:** ICU, the compliance rate of PG is equivalent to that observed in other services. The PG is however more often abusive. Finally, in the ICU, the gloves are worn too long, are not removed in time and may enhance the transmission of germs reach manu



**P 292 Practice Assessment Survey bladder in surgical intensive care unit**

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**Introduction.:** Urinary tract infection in intensive care unit is a cause of morbidity, longer stays and additional large costs. It is proposed to evaluate the practice of catheterization in a surgical intensive care unit.

**Materials and Methods:** Prospective observational study of a period of three months (June-August 2011). At each catheterization, a form is completed by a physician not involved in the installation. Are recorded data about the patient but also the different steps of the catheterization.

**Results:** 52 patients were included in the study. The mean age = 54 years, sex ratio 1.2, SAPS II = 41.6 ± 19.3, APACHE II 20.4 ± 9.6. The average length of stay was 4.5 ± 6.2 days. The reason for admission is a gastrointestinal hemorrhage in 14 cases (26.9%), severe head trauma in 10 cases (19.2%), acute pancreatitis in 8 cases (15.3%), occlusive syndrome 10 cases (19.2%). Approximately 28.3% of patients had respiratory support with an average duration of 4.8 ± 5 days. About 21% of patients are diabetic. About 18% received antibiotics in the days leading up to the catheterization. Most patients (50) were surveyed on admission. The mean duration of catheterization was 5.5 ± 5.08 days and ranged from 1 to 21 days. Six patients (11.53%) developed a urinary tract infection: *Candida albicans* in two, three and *Klebsiella P. them* and to *E. Coli*. Monitoring the achievement of urinary catheterization in our patients shows an adherence to hand washing by 65%. The toilet is made of genital respecting the chronological order in 92% of cases, the second washing hands before putting gloves in sterile 62% of cases. A sterile lubricant is used in 73% of cases. The closed system is respected at laying only 60% of cases but later closed drainage is maintained in 91% of cases. The realization of a toilet genital daily after poll is observed in 15 cases.

**Discussion:** The urinary catheter infection is a source of morbidity, the only means of control is prevention although this issue has not been extensively evaluated. Thus, neither the use of closed system can be complex or urinary catheters impregnated with silver salts do not appear to be effective. In our series, analysis of different stages of bladder catheter placement, shows failures in terms of hand hygiene for the operator and the perineal region for the patient, followed by the failure of the closed system.

**Conclusion:** This observational study provides evidence that there were deficiencies in the practice raises urinary catheters. A training program will be implemented to overcome these shortcomings

**P 293 Microbial keratitis after penetrating keratoplasty**

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**Purpose:** To report predisposing factors, clinical aspects, microbiological diagnosis and graft outcome in microbial keratitis after penetrating keratoplasty.

**Material and methods:** A10-year retrospective review of 14 patients admitted with microbial keratitis following penetrating keratoplasty at the service B, in the Hedi Raies Institut of Ophthalmology, Tunisia between January 2000 and September 2009.

**Results:** Penetrating keratoplasty was performed for emergency corneal perforation in 6 cases, pseudophakic bullous keratopathy in 3 cases, sequellae of infectious keratitis in 2 cases, therapeutic keratoplasty in resistant keratitis in 1 case and corneal opacity associated with congenital glaucoma in 1 case. Suture-related problems are the most common risk factor predisposing to microbiological keratitis with a prevalence of 64.28%. Long term corticotherapy was found in 57.14% of cases and persistent epithelial defect in 50% of cases. The median time interval between the graft and infection was 16.71 months (range: 1 month to 10 years). Microbiological spectrum was positive in 42.85% of cases. Polymicrobial Keratitis occurs in one case of a renal transplant patient. Two patients had penetrating keratoplasty. Resolution of the infection was obtained in all cases, but with graft opacities in 71.42% with a poor visual acuity.

**Conclusion:** Microbial keratitis after penetrating keratoplasty is a serious complication. It can develop at any time after the transplant and may lead to graft failure and poor visual outcome.