Staphylococcal Infective Endocarditis

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INTRODUCTION

- SIE = Serious infection
- It is one of the most devastating manifestations of *S. aureus* infection
- Considerable morbidity and mortality
- Surgery is often required for a successful outcome
- It exhibits a **great challenge** because of its clinical, echocardiographic and microbiological particularities.

AIM

- To report clinical and microbiological features of SIE
- To study the management and outcomes
- To reveal prognostic factors

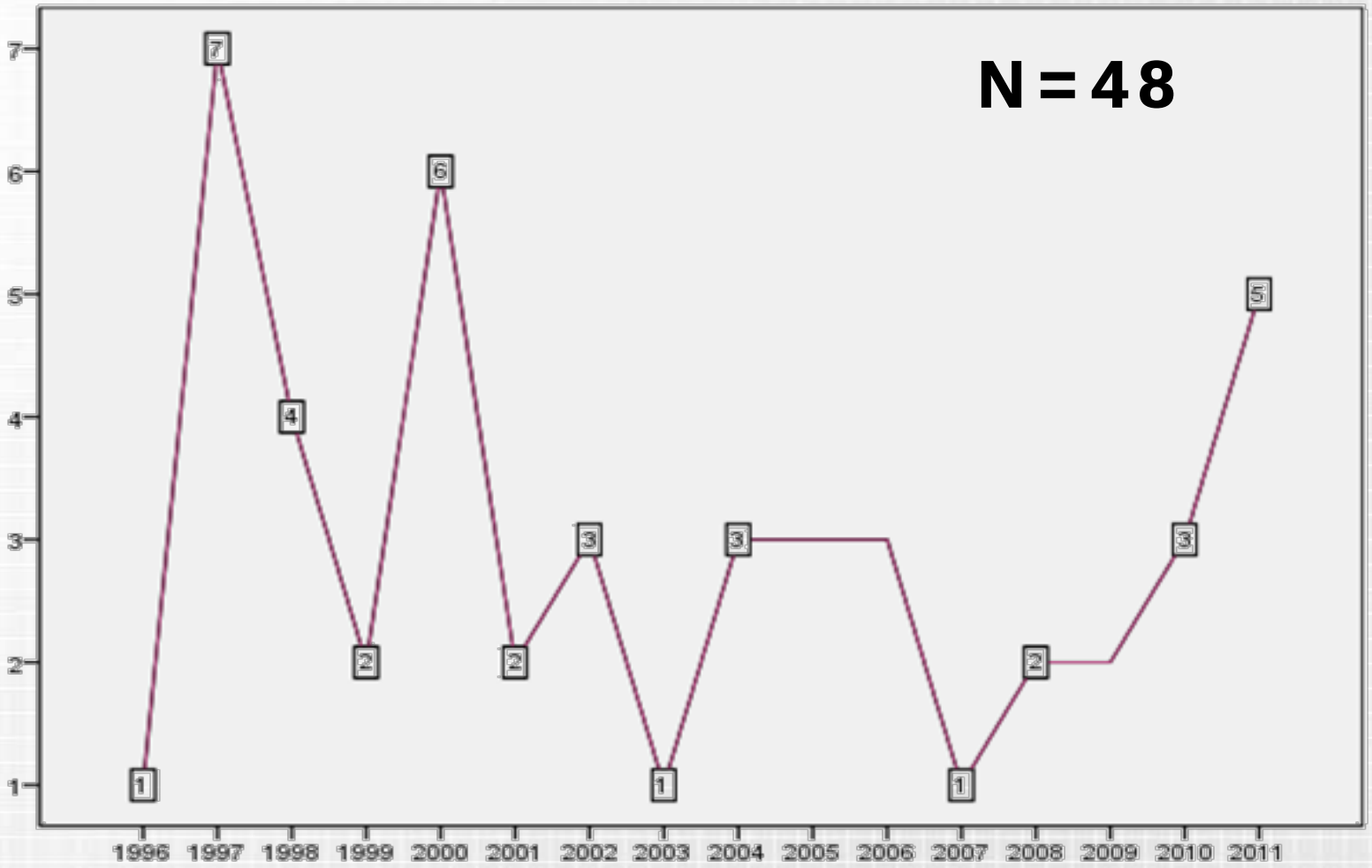
PATIENTS & METHODS

- Retrospective study between 1996 and 2011 at department of cardiology of Sfax (Southern TUNISIA)
- Diagnosis of SIE was established through Dukes criteria
- The statistical analysis was performed using the SPSS 18.0 statistical package.

PATIENTS & METHODS

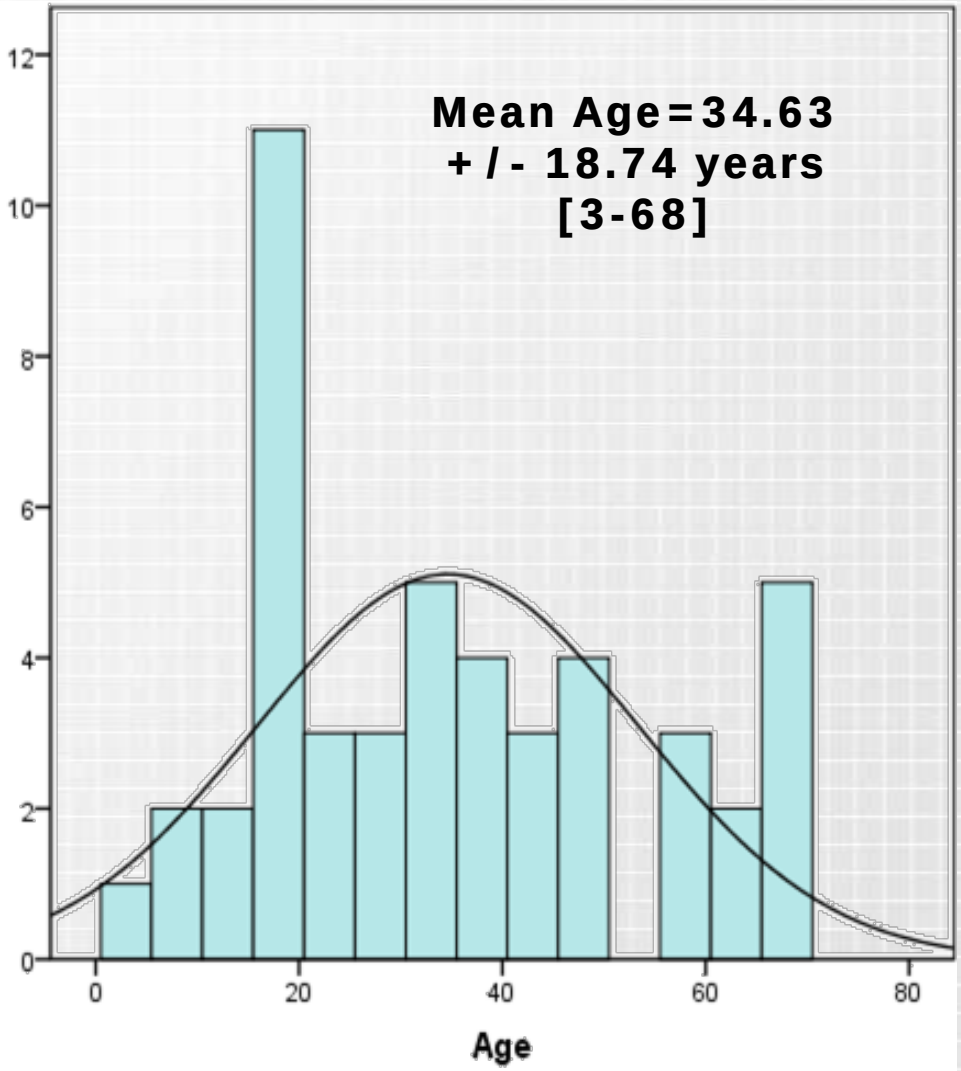
- Continuous variables were compared with Student's t test.
- Categorical variables with the χ^2 test or Fisher's exact test where expected values were<5.
- A two-sided p-value of 5% was established as the level of statistical significance for all tests.

RESULTS



Distribution of patients diagnosed with SIE per year

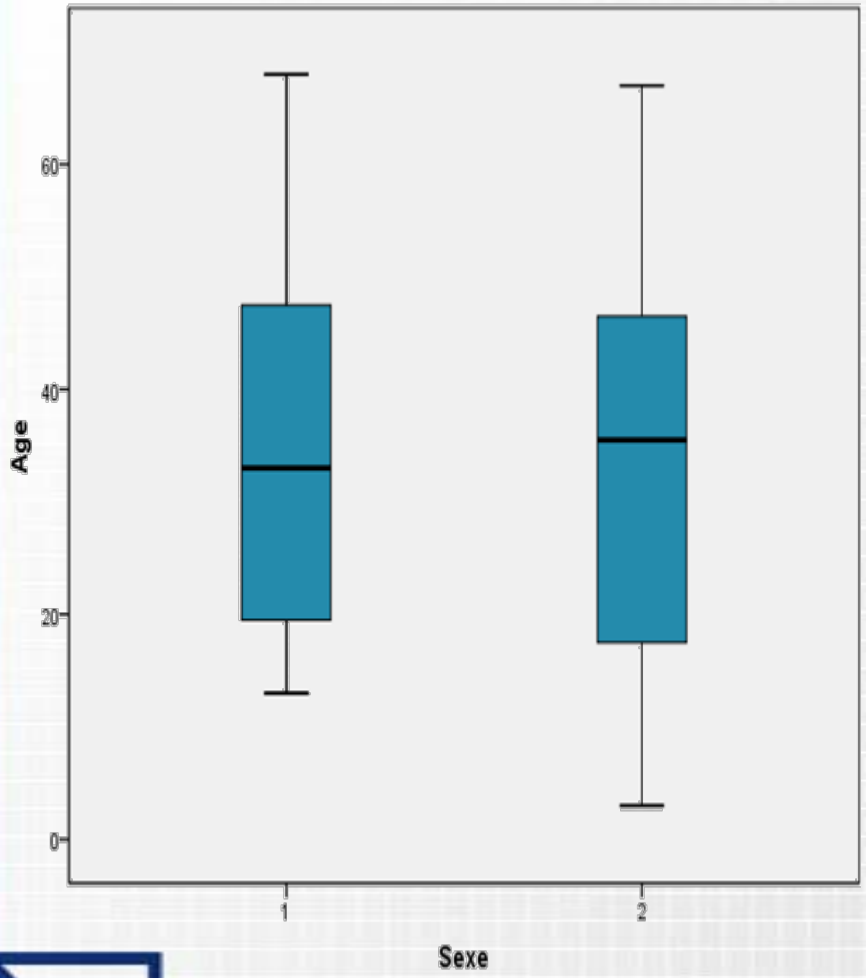
RESULTS

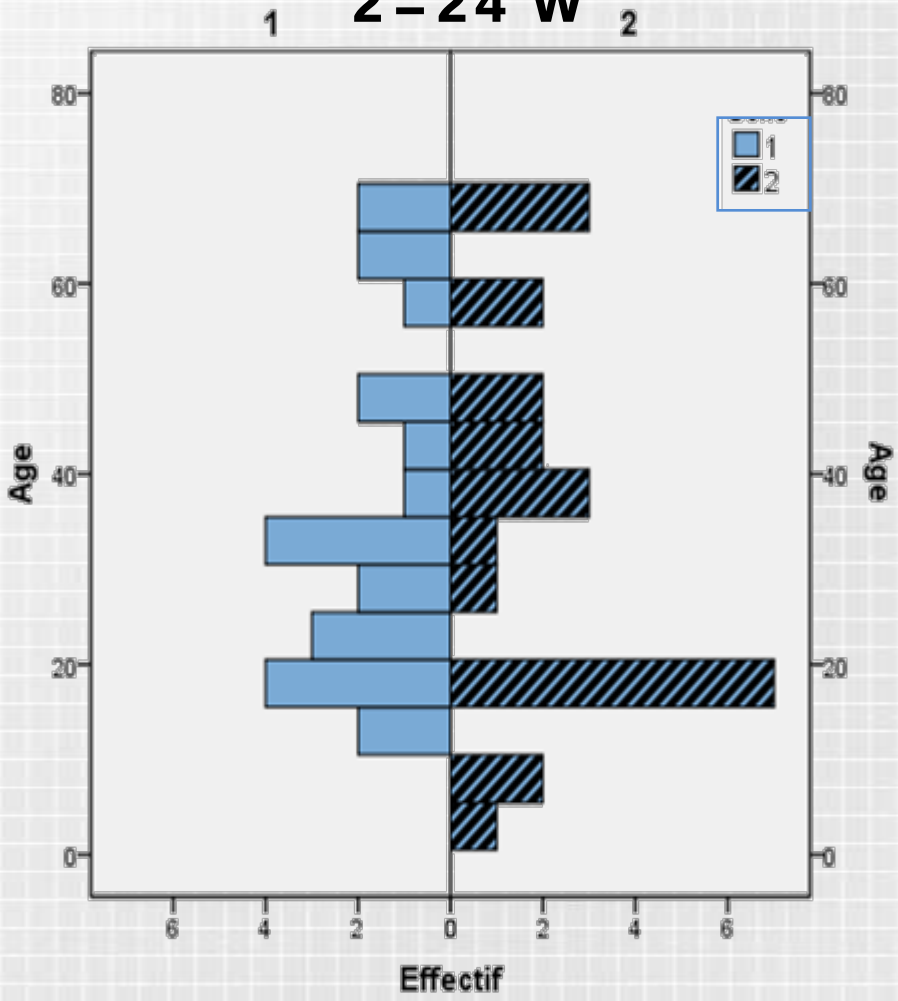


Distribution of patients by age

Sex ratio= 1

1=24 M
2=24 W





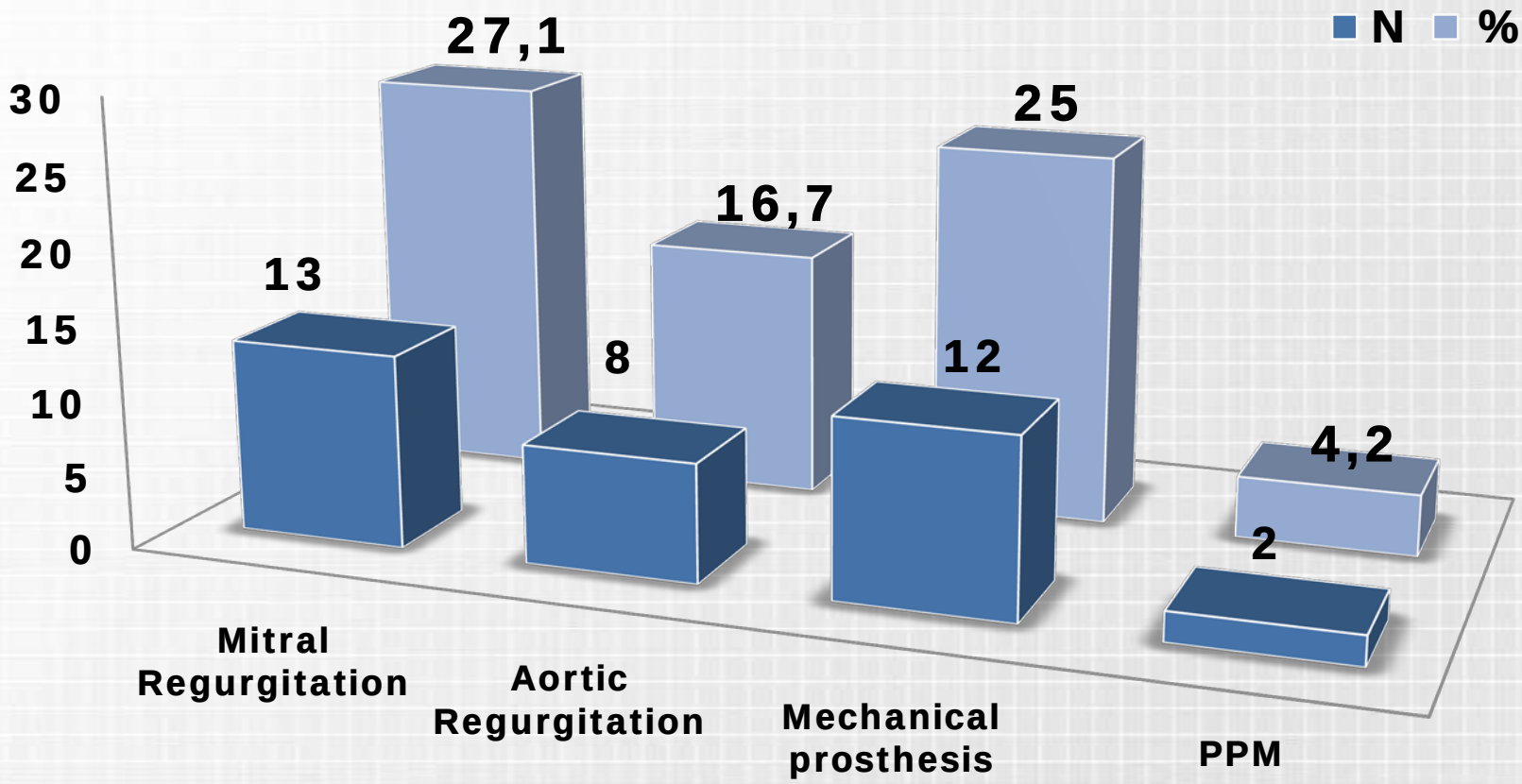
Distribution of patients by age and sex

RESULTS

Main risk factors

Risk factor	N (%)
Diabetes	1 (2.08)
Arteriovenous fistula	7 (14.6)
IDU	0
Rheumatic fever	12 (25)
Previous Cardiac Surgery	12 (25)
Dental procedures	9 (18.75)
Cutaneous entry site	9 (18.75)

RESULTS



Major cardiac impairement

RESULTS

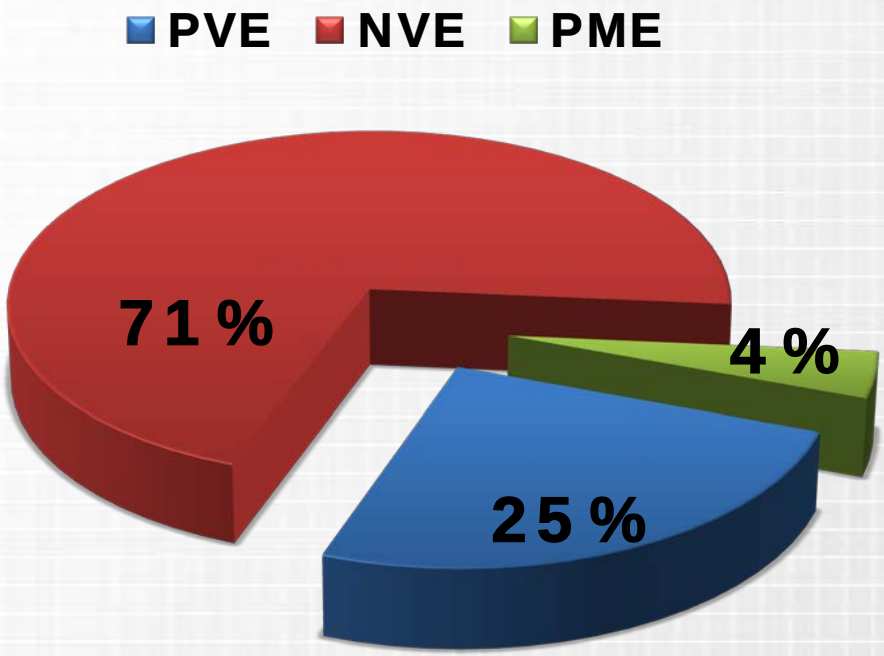
- Physical examination had shown fever in 47 patients (**97.9**%) and heart murmur in 33 patients (**68.8**%).
- **Prior antibiotic treatment**:

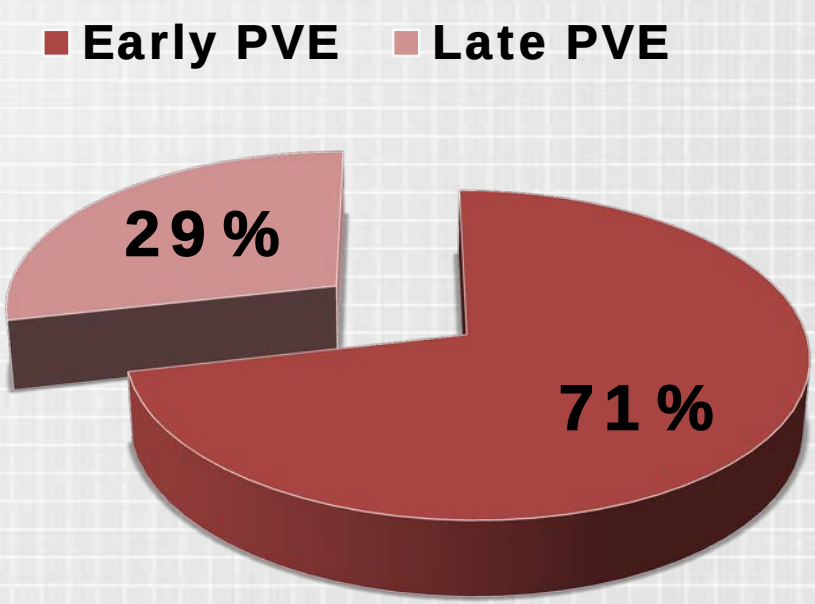
16 patients (33.3%) had taken antibiotics before admission for a mean duration of 12.77 ± 15 days.

	Mean	SD*
Time for consultation (days)	**11.6**	**13.9**
In-hospital stay (days)	**42.14**	**24.5**

*: standard deviation

RESULTS





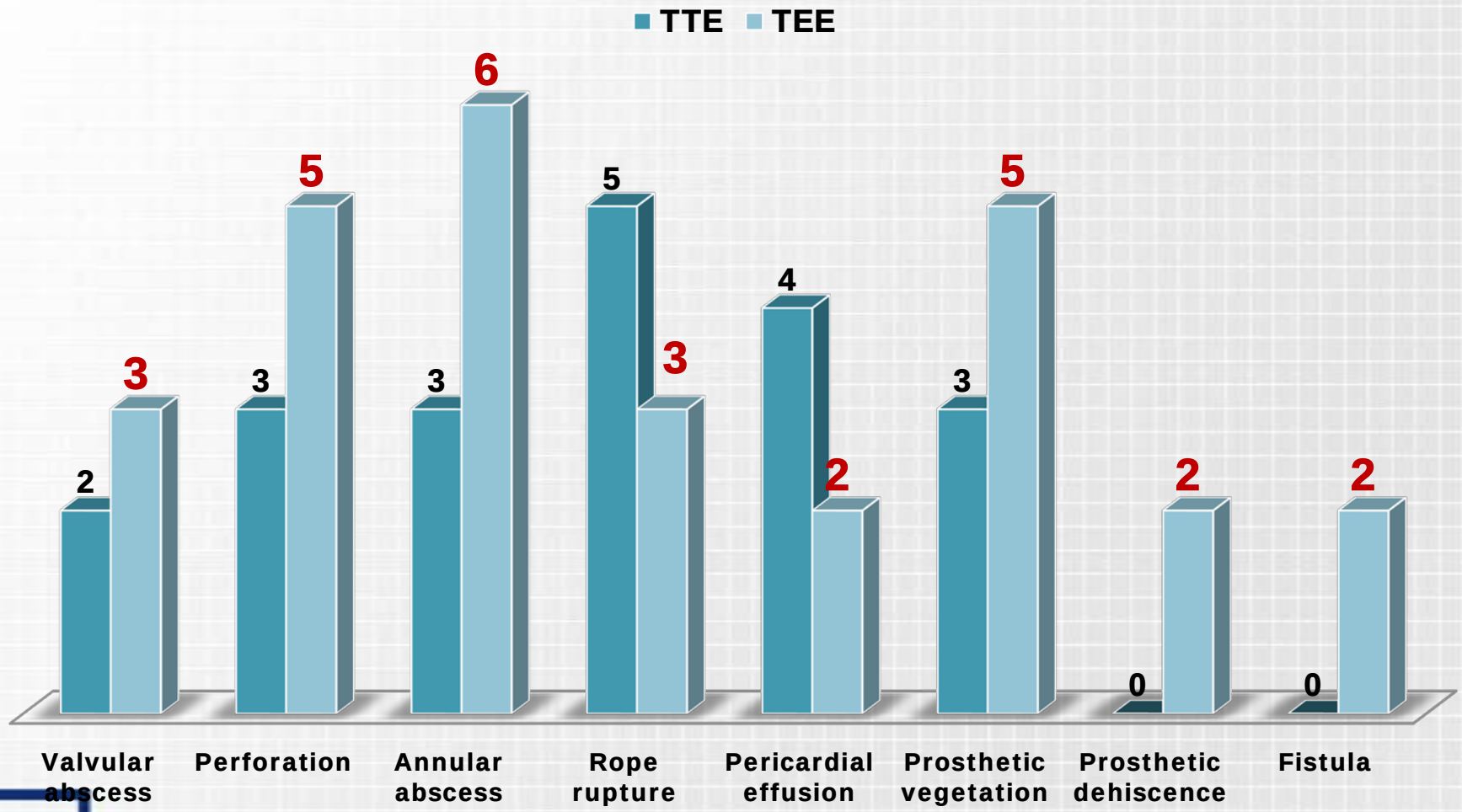
PVE=12 patients
NVE=34 patients
PME=2 patients

RESULTS

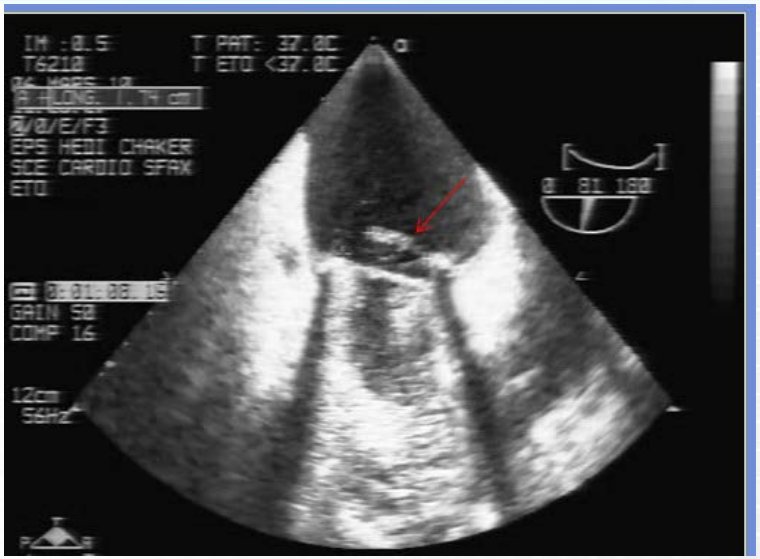
Echocardiographic findings

	n	Frequency(%)
Vegetation	**40**	*83.3*
S ≤10 mm	15	*37.5*
10< S <15 mm	9	*22.5*
S ≥15 mm	16	*40*
Aortic vegetation	14	*29.2*
Mitral vegetation	**25**	*52.1*
Tricuspid vegetation	3	*6.3*
Pulmonary vegetation	3	*6.3*
PPM vegetation	2	*4.2*

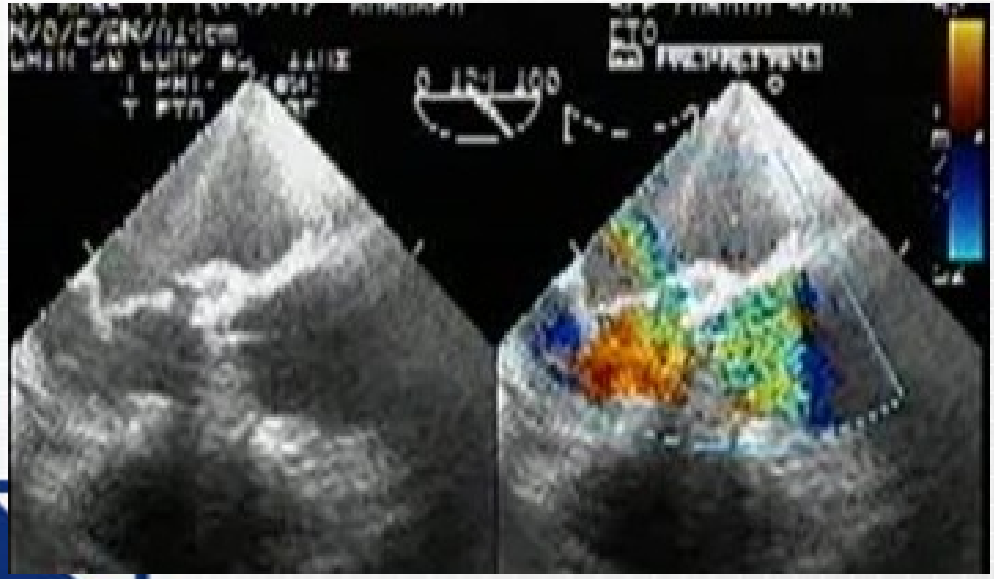
RESULTS



Echocardiographic complications of SIE


EPS HEDI CHAKER
SOE CARDIO SFAX
ETO
GAIN 58
COMP 16
12cm
56Hz

CARDIO SFAX

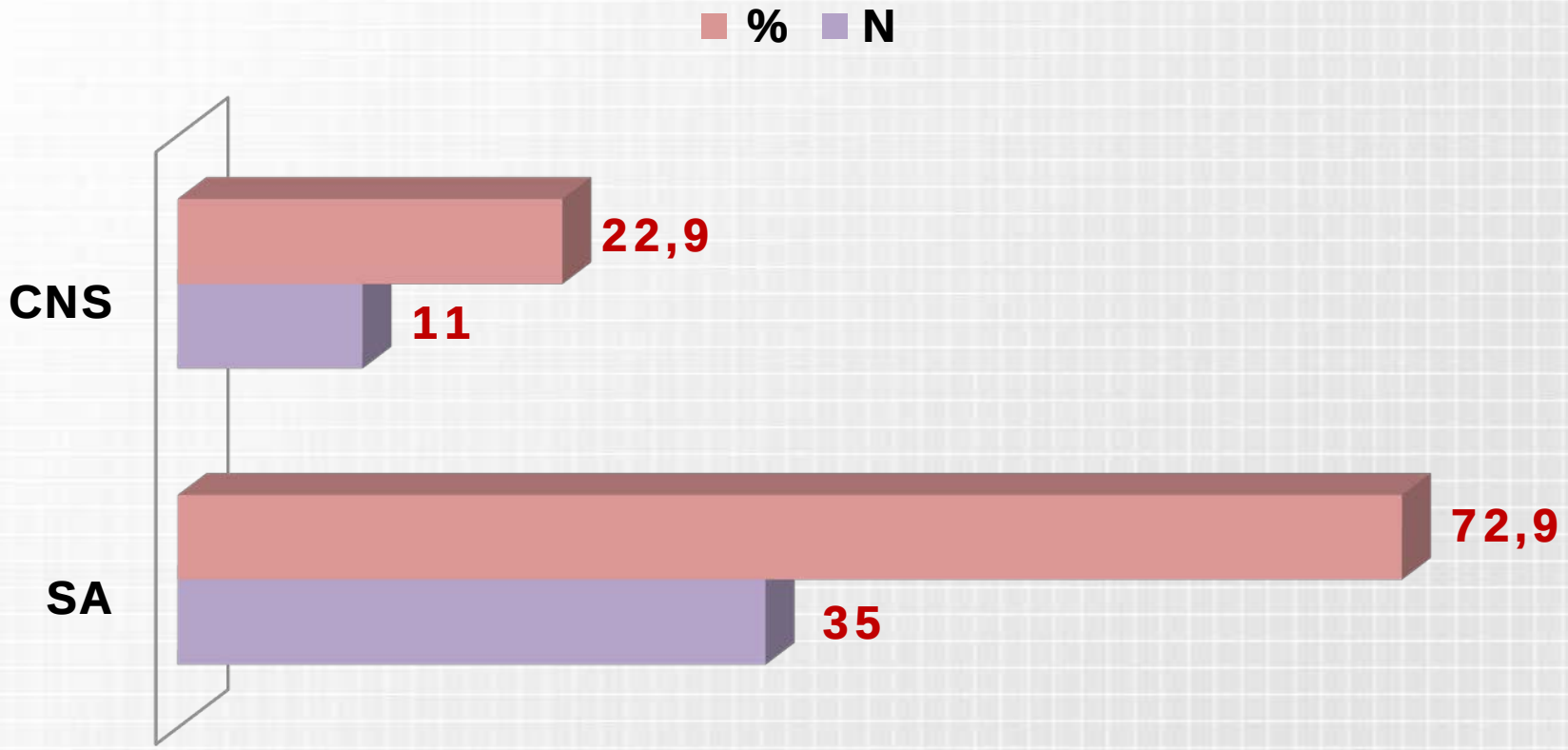

ETO

CARDIO SFAX

RESULTS

- **Blood cultures** were performed for all patients
  - mean delay of 1.13 ± 1.9 days
  - average of 4.77 samples per person
  - positivity rate among 95.8%.
- **Valve culture** :
  - Performed for 10 patients (**since 2001**)
  - 5 positive valve cultures

RESULTS



Microbiological findings in Blood culture

RESULTS

	SA (n=35)	CNS(n=11)	P-value
Age	35.6 ± 20	33.09 ± 16	0.7
Male	17	6	0.7
In-stay hospital	40.5 ± 26.6	40 ±14.9	0.39
Mean delay of consultation	13.7 ± 15	4.25 ± 3.7	0.003
Mean duration of treatment	40.9 ±19.5	51.2 ± 22.3	0.15
Need for surgery	18	3	0.18
Prosthetic dehiscence	0	2	0.009
Vegetation ≥ 15 mm	13	1	0.08
TEE vegetation	25	3	0.014
Death	7	1	0.65

Clinical profiles of SIE depending on strain

RESULTS

- **Surgery:**
  - 23 patients (47.9%) underwent cardiac surgery with a mean delay of 16.5 ± 13.2 days [0-36]
    - **Hemodynamic complications**: 13 patients (56.6%)
    - Persisting sepsis: 4 patients (17.4%)
    - Annular abscess: 6 patients (26%)

RESULTS

Post-operative complications

N= 31 patients (64.58%)	n (%)
Heart failure	9 (*18.75*)
Renal failure	12 (*25*)
Septic metastases	13 (*27.1*)
Neurological complications	16 (*33.3*)
Prosthetic dehiscence	0
Prosthetic thrombosis	0

RESULTS

- The long-term prognosis: favorable (**83.3%**)
- Apyrexia within 8.6 days (± 6.44)
- Mean Follow-up=22.23 months(± 25.3)
- Early relapse= 6 patients
- Only **8 patients** were died
  - refractory heart failure (5 patients)
  - persisting sepsis (3 patients)

RESULTS

Prognostic factors in staphylococcal infective endocarditis

Factor	Died	Survivors	P-value
Age	43.5	32.85	0.14
Male	3	21	0.45
Delay of consultation	5.83	12.6	0.27
RFπ	13	2	0.59
MR*	9	2	0.41
AE#	2	7	0.7
Prosthese	1	11	0.66
SA	22	5	0.6

π: rheumatic fever; *: Mitral regurgitation; #: arterial embolism;

CONCLUSIONS

- SIE remains the deadliest of staphylococcal infections.
- Echocardiography has a crucial role in the diagnosis.
- The rapid biologic identification can lead to prompt confirmation and management, including early referral for valve replacement.
- It should be kept in mind that this infection needs strong collaboration.

THANK YOU