

Introduction

The mortality of infective endocarditis (IE) has been well studied in the past, but not at a population level. In this study, we assessed the determinants of hospital mortality in IE in France, using the national hospital discharge database (HDD) in 2011.

Materials and Methods

- In France, all stays in public or private hospitals are coded using diagnosis codes (ICD-10) and acts codes.
- IE stays were extracted from the national HDD, with a definition based on IE-related diagnosis codes.
- **Definition for a stay for IE:** Hospital stay longer than 24 hours of a patient resident in France with a principal (PD) or associated (AD) diagnosis code of IE, which can be associated to other diagnosis codes related to IE (bacteraemia codes, complication codes ...). Patients with a stay for IE in 2010 were excluded.
- The case definition has been previously assessed by checking a sample of medical charts of EI in one French region in 2011 (198 patients, Se 90%, PPV 87.4%).¹ The frequency of definite IE according to Duke criteria linked to the HD summary was 74.4%, 95% CI 67.9%-80.9%.¹
- Risk Factors of inhospital mortality were estimated using logistic regression model.
- Correlation between regional frequency of surgery and regional mortality was analyzed

References

1. S. Sunder, S. Baron, F. Bastides et al. 578 endocarditis in a French region: epidemiology, mortality and costs. Poster L1-1639 – ICAAC 2012
2. C. Selton-Suty, M. Célard, V. Le Moing et al. Preeminence of *Staphylococcus aureus* endocarditis: a 1-year population-based survey. Clin Inf Dis. 2012; 54: 1230-9

Results

The analysis included 4,340 patients. A valvular surgery was performed in 23% of cases. The hospital mortality was 20.9%. There was disparity in frequency of surgery and mortality according to the region of domiciliation of patients, without correlation between these variables ($r=0.088$, figure)

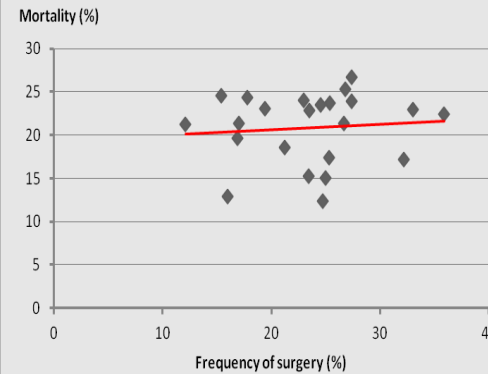


Figure: Frequency of surgery and mortality by regions

Variable	Multivariate analysis OR (95% CI)
Age < 70 years	-
Age ≥ 70 years	1.77 (1,49 – 2.10)
Predisposing diseases	
Chronic respiratory insufficiency	1.35 (1.07 – 1.72)
Cancer	1.64 (1.32 – 2.05)
IDU	0.37 (0.16 – 0.90)
Valvular status	
Native valve	-
Prosthetic valve	0.81 (0.67 – 0.99)
Microorganism (monomicrobial)	
<i>Staphylococcus aureus</i>	2.17 (1.78 – 2.63)
<i>Pseudomonas aeruginosa</i>	2.03 (1.10 – 3.73)
<i>Escherichia coli</i>	0.60 (0.38 – 0.96)
Complications	
Ischemic stroke	1.71 (1.34 – 2.18)
Hemorrhagic stroke	3.04 (2.15 – 4.31)
Acute limb ischemia	1.64 (1.05 – 2.59)
Vertebral osteomyelitis	0.42 (0.26 – 0.66)
Cardiogenic shock	6.05 (4,77 – 7.69)
Valvular surgery	0.47 (0.37 – 0.60)

Conclusions

- Risk factors of inhospital mortality in IE were age > 70 years, chronic respiratory insufficiency, cancer, *Staphylococcus aureus* and *Pseudomonas aeruginosa* infection, neurological complication and cardiogenic shock.
- Protective factors for mortality were IE in IDU (right heart IE), vertebral osteomyelitis and valvular surgery.
- Valvular surgery was considerably less frequent in this study than in the previous published data interesting a French population (near 50%) whereas mortality was similar.² Differences in population (only definite IE in this study) could partially but not fully explain the lower frequency of surgery.
- There were significant regional differences in frequency of surgery but it did not impact mortality.
- A validation of our case definition in others regions, especially in those where the frequency of surgery is low, would validate our results.
- Valvular surgery is beneficial in well definite indications (large vegetations, cardiac insufficiency, uncontrolled infection), but in others situations its contribution to reduce mortality remain uncertain.