Mortality determinants in 4340 infective endocarditis cases in France

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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 enocarditis 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 theses variables (r=0.088, figure)

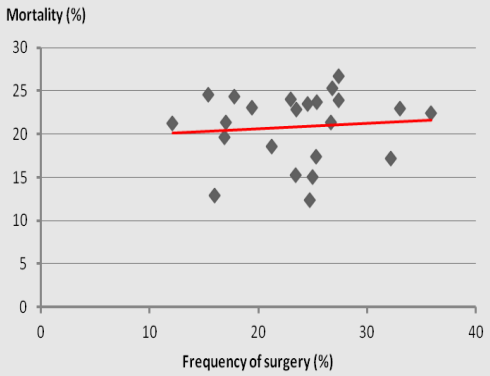

Figure: Frequency of surgery and mortality by regions

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)	
Staphylococcus aureus	2.17 (1.78 – 2.63)
Pseudomonas aeruginosa	2.03 (1.10 – 3.73)
Escherichia coli	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 were 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.