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ORIGINAL ARTICLE

Infective endocarditis: Surgical management and prognostic predictors

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KEYWORDS
Infective endocarditis;
Surgery;
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Abstract
Introduction and Aim: Infective endocarditis (IE) is associated with high morbidity and mortality. It is important to determine which factors increase the risk of poor outcome in order to enable early detection and aggressive treatment, including surgery. The aim of our study was to identify factors predicting complications and in-hospital mortality in patients with IE and to analyze conditions predisposing to surgery and its outcome.
Methods: We performed a retrospective study including patients with IE who underwent transesophageal echocardiography in a tertiary hospital center (2006-2014).
Results: A total of 233 patients were analyzed (69.1% male; mean age 63.4±15.2 years; mean follow-up 28.4±30.7 months). The complication rate was 56.6% and in-hospital mortality was 16.3%. Independent predictors of mortality were chronic obstructive pulmonary disease (OR 4.89; CI 1.36-17.63; p=0.015), clinical course complicated by cerebral embolism (OR 9.38; CI 3.26-26.96; p<0.001), and IE due to *Staphylococcus* spp. (OR 3.78; CI 1.32-10.85; p=0.014) and non-HACEK Gram-negative bacilli (OR 12.85; CI 2.61-63.23; p=0.002). Surgery was performed in 36.9%. This group had higher percentages of males, younger patients, aortic valve IE, large vegetations, perivalvular extension, severe valvular regurgitation and heart failure. In patients with surgical indication (n=133), those who underwent surgery had lower in-hospital mortality (15.5% vs. 32.6%, p=0.028) and better long-term survival (log-rank p=0.029).
Conclusion: The results of this study may help to identify IE patients who are at increased risk of worse outcome, offering the opportunity to change the course of the disease and to improve prognosis with earlier and more aggressive intervention.

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PALAVRAS-CHAVE
Endocardite infeciosa;
Cirurgia;
Prognóstico

Endocardite infeciosa: tratamento cirúrgico e preditores prognósticos

Resumo
Introdução e objetivo: A endocardite infeciosa (EI) está a associada a elevada morbi-mortalidade. Torna-se importante definir os fatores que aumentam o risco de um desfecho desfavorável de modo a tratar de uma forma precoce e agressiva, incluindo tratamento cirúrgico. O objetivo deste estudo foi identificar fatores preditivos de complicações e mortalidade intra-hospitalar em doentes com EI e analisar as condições predisponentes para cirurgia e o seu resultado.
Métodos: Estudo retrospetivo que incluiu doentes com EI que fizeram ecocardiograma transesofágico num centro hospitalar terciário (2006-2014).
Resultados: Foram avaliados 233 pacientes (69,1% homens; idade média 63,4±15,2 anos; *follow-up* médio 28,4±30,7 meses). A taxa de complicações foi 56,6% e mortalidade intra-hospitalar 16,3%. Preditores independentes de mortalidade foram doença pulmonar obstrutiva crónica (OR 4,89; CI 1,36-17,63; p=0,015), embolia cerebral (OR 9,38; CI 3,26-26,96; p<0,001) e EI por *Staphylococcus* spp. (OR 3,78; CI 1,32-10,85; p=0,014) e bacilos Gram-negativos não HACEK (OR 12,85; CI 2,61-63,23; p=0,002). Fez-se cirurgia em 36,9%. Esse grupo apresentava maior percentagem de homens, jovens, EI da válvula aórtica, vegetações grandes, extensão perivalvular, regurgitação valvular grave e insuficiência cardíaca. No subgrupo de doentes com indicação cirúrgica (133), aqueles submetidos a cirurgia tiveram uma mortalidade intra-hospitalar menor (15,5% *versus* 32,6%, p=0,028) e melhor sobrevida em longo prazo (*log-rank* p=0,029).
Conclusão: Os resultados deste estudo podem ajudar a identificar doentes com EI que apresentam maior risco de um desfecho desfavorável, permitem alterar o curso da doença e melhorar o prognóstico através de uma intervenção mais precoce e agressiva.

Introduction

The challenges associated with infective endocarditis (IE) are greater than ever. The patients affected are older and sicker than in the past, and often have many comorbidities.[1]

The role of surgery in active IE has expanded progressively, and nowadays almost half of patients with IE undergo surgery.[2] There are three main indications: valve dysfunction leading to heart failure, uncontrolled infection, and for prevention of embolism.

Despite improvements in management, IE is still associated with high mortality and severe complications. Prognosis is influenced by many factors and early identification of high-risk patients may change the course of the disease and improve outcome.

The aim of this study was to identify factors predicting in-hospital mortality and complications and to analyze conditions predisposing to surgical therapy and its outcome in a single tertiary hospital with facilities for surgical therapy.

Methods

Study population

All patients who underwent transesophageal echocardiography in a tertiary hospital center with cardiac surgery facilities due to suspicion of IE and diagnosed with IE between 2006 and 2014 were recorded in a uniform database.

The study included cases from our hospital, as well as from community and referral hospitals.

Criteria and definitions

Patients were included if they met criteria for definite or possible IE (if considered and treated as endocarditis) by the modified Duke criteria.[3] Patients with cardiac device-related IE were excluded.

In-hospital mortality was defined as all in-hospital deaths, including patients transferred to other acute care facilities.

The complications analyzed were heart failure, perivalvular extension, and cerebral and peripheral embolism. Perivalvular extension was defined by the presence of abscesses, pseudoaneurysms or fistulae.

Regarding timing, prosthetic valve endocarditis was defined as early if it occurred within 12 months of previous surgery. Surgical therapy was defined as early if the intervention was performed within seven days of diagnosis, and late if performed thereafter.

Indications for surgery were in accordance with the current European Society of Cardiology guidelines.[4] Follow-up data were obtained by review of medical records, outpatient clinical visits, and telephone contact.

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