Original research article

3D Transesophageal echocardiography has benefits in the diagnosis and prognosis of patients with infectious endocarditis

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Abstract

Introduction: Infective endocarditis (IE), despite advancements in diagnostic and therapeutic strategies, remains a life-threatening condition with high in-hospital mortality. The aim of this study was to assess an importance of a different echocardiographic techniques in the evaluation of patients with IE.

Methods: This prospective study included all consecutive patients hospitalized with a diagnosis of IE. Each patient underwent both 2D transesophageal echocardiography (2DTOE) and 3D transesophageal echocardiography (3DTOE) as part of the initial diagnostic evaluation. Laboratory results, isolated pathogens, and monitoring during hospitalization were also taken into account.

Results: The study included 59 patients (69.49% male, mean age 64.4 ± 16.0). Native valve endocarditis (NVE) was present in 32 (54.24%), prosthetic valve endocarditis (PVE) in 17 (28.81%), and cardiac device-related IE (CDIE) in 10 (16.95%). Blood cultures were positive in 72.4% of cases, with Enterococcus faecalis predominant in NVE, and Staphylococcus species in PVE (S. epidermidis) and CDIE (S. aureus) ($p = 0.039$). TOE provided detailed imaging, detecting more lesions, with 3D TOE excelling in identifying destructive lesions, particularly perforations ($p < 0.001$). Vegetations were most frequent in NVE and CDIE, while destructive lesions were more common in PVE ($p < 0.05$). 3D TOE identified longer vegetations and more destructive lesions, especially in PVE ($p < 0.05$).

Conclusion: 3D TOE, provide a detailed real time imaging, and could be considered as key adjunctive modality in practice when the cardiac anatomy is not precisely visualized by 2D TOE, particularly when advanced surgical planning is required.

Keywords

infective endocarditis, echocardiography, transesophageal echocardiography, prognosis

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1 Introduction

Infective endocarditis (IE), regardless of current development in diagnostic[1] and therapeutic strategies[1] is still lethal infective syndrome related with high in-hospital mortality, going from 17% to 40%.[1–4] The clinical symptoms of IE are highly

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