Echocardiographic Assessment and Management of Infective Endocarditis: Experience at The Prince Charles Hospital

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Introduction:
Infective endocarditis (IE) is a common pathology requiring admission for in-patient management. Current guidelines recommend transthoracic echocardiography (TTE) for suspected IE and transoesophageal echocardiography (TOE) for patients with prosthetic valves, equivocal TTE or high clinical suspicion of IE.

Methods:
A retrospective audit of patients admitted for active IE at The Prince Charles Hospital (Brisbane, Australia) between July 2016 and January 2018 was performed.

Results:
One hundred and twenty-five (125) patients were identified with suspected IE. One hundred six (106) had echocardiography performed at TPCH or available through external report (n=5).

Demographics
Mean age was 57 ± 19 years (SD). Sixty-seven (67) patients had TTE and seventy-three (73) patients had TOE (Figure 1). There were thirty-five (35) patients who had TTE initially and went on to have subsequent TOE within thirteen (13) days. Twenty (20) patients had a history of intra-venous drug use (IVDU).

Echocardiography
Ninety-four (94) patients had IE confirmed by echocardiography (Figure 3 & 4). Left-sided IE (n=48) was more common with isolated aortic (n=24) and mitral valve (n=24) being the most commonly affected valves (Figure 2). Fifty-eight (58) patients had native valve IE, thirty (30) patients had previous cardiac surgery (valve replacement/repair, n=24); congenital heart disease repair, n=4; aortic surgery, n=1; heart transplant, n=1) and six (6) patients had a cardiac device infection (AICD/PPM).

Management & outcomes
Forty-nine (49) patients were managed conservatively with anti-microbials with an average duration of 43 ± 21 days. Forty-five (45) patients required surgical intervention. Of the patients who underwent surgery, twenty-two (22) required TOE for diagnosis of IE after TTE yielded equivocal results (Figure 5 & 6).

There were fifteen (15) deaths at the end of the study, of which four (4) were in-hospital.

Discussion:
Infective endocarditis is a life-threatening disease associated with a high mortality rate (12% in our study). Echocardiography plays a key role in the diagnosis of IE (75% in our study). Transthoracic echocardiography is used in the first instance in patients with suspected IE, as it is non-invasive and can determine IE severity. The use of transoesophageal echocardiography is reserved for certain situations such as: equivocal TTE findings, high clinical suspicion of IE, para-valvular complications, prosthetic valves, and left-sided IE. A significant proportion of our patients with suspected IE underwent subsequent TOE following TTE (25%). In the group of patients who underwent surgery for IE, 49% required subsequent TOE for IE diagnosis after prior TTE.

Conclusion:
Echocardiography remains a useful tool in the diagnosis of patients with suspected IE. In cases where TTE results are equivocal or a high clinical suspicion remains, TOE is then performed to confirm a diagnosis of IE.

References: