Review: Transthoracic echocardiography and transesophageal echocardiography detect cardiac masses in patients with stroke


Questions
When are transthoracic echocardiography (TTE) and transesophageal echocardiography (TEE) appropriate for the evaluation of patients with stroke, and can they be used to direct therapy?

Data Sources
Studies were identified by searching MEDLINE (1966 to April 1998) with the terms cerebrovascular disorders, heart diseases, echocardiography, thromboembolic disorders, intracardiac thrombus, diagnosis, prevention, and therapy. Bibliographies were reviewed, and experts were contacted.

Study Selection
Studies with relevant content were selected if they were published in peer-reviewed journals. Studies were excluded if the patients were not consecutive or if they had peripheral emboli.

Data Extraction
Data were extracted on quality by using the Canadian Task Force on Preventive Health Care levels of evidence. Data were analyzed for cardioembolic sources (atrial fibrillation, intracardiac thrombus, atrial myxoma, mitral stenosis, mechanical valves, recent myocardial infarction, infective endocarditis, marantic endocarditis, dilated cardiomyopathy, and aortic arch atheromatous plaques), embolic rates, TTE, TEE, and outcomes (sensitivity, specificity, and treatment effectiveness).

Main Results
Sensitivity and specificity were high for TTE and TEE for detecting left ventricular thrombi (Table). TEE had high accuracy for detecting left atrial thrombi and patent foramen ovale (Table). TEE detected intracardiac masses in 4% (range 0% to 16%) of all patients, 13% (range 0% to 40%) of patients with cardiac disease, and 0.7% (range 0% to 6%) of patients without cardiac disease. TEE detected intracardiac masses in 11% (range 0% to 21%) of all patients, 19% (range 10% to 34%) of patients with cardiac disease, and 1.6% (range 0% to 4%) of patients without cardiac disease. The cost-effectiveness of TEE was U.S. $13 000/quality-adjusted life-year for all patients with stroke and $9000/quality-adjusted life-year for patients with stroke who had cardiac disease.

Conclusions
Echocardiography is recommended for patients with stroke only if clinical evidence of cardiac disease exists and no contraindications to or indications for anticoagulation are present. TEE is recommended as the first screening test.

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References