

Variable Performance of Evidence-Based Guidelines for Echocardiography in Patients with Hip Fractures

*Eric F. Swart, MD; Christopher Adair, MD; Rachel Seymour, PhD; Madhav A. Karunakar, MD
Carolinas Medical Center, Charlotte, NC, United States*

Purpose: Osteoporotic hip fractures typically occur in frail, elderly patients with multiple medical comorbidities. The preoperative evaluation process sometimes involves transthoracic echocardiography (TTE) to screen for significant heart disease that would alter perioperative management. Evidence suggests that use of guidelines and care pathways can improve the effectiveness of care delivered, but it is unclear which guidelines/pathways are the most useful in patients with hip fractures.

Methods: We performed a retrospective chart review based on a prospective registry of osteoporotic hip fracture patients to identify all patients who underwent preoperative TTE. The history, physical examination findings, and listed indications for TTE were compared to those given in 5 commonly utilized clinical practice guidelines (CPGs): American College of Cardiology (ACC/AHH), British Society of Echocardiography (BSE), European Society of Echocardiography (ESC/ESE), Association of Anesthesia of Great Britain and Ireland (AAGBI), and Scottish Intercollegiate Guidelines Network (SIGN). The performance of these guidelines (sensitivity, specificity) for identifying which patients would have TTEs with information with potential to change perioperative management was calculated.

Results: 100 patients were identified receiving preoperative TTE, and the patients met criteria for TTE 32%-66% of the time, based on the individual CPG used. TTE revealed new information with the potential to change management 14% of the time. As a screening tool, the ACC/AHH and SIGN guidelines performed the best, both with 100% sensitivity for identifying which patients may benefit from TTE.

Conclusion: Prior to fixation of osteoporotic hip fractures, TTE can be a useful tool for identifying pathology that may directly lead to changes in perioperative medical or anesthesia management. Based on these data, established CPGs can be safely used to identify which patients should receive preoperative TTE with low risk or missed pathology. The guidelines that were the most sensitive tended to focus on a change in clinical status in patients with known disease, or clinical concern for new onset disease of at least moderate severity.