

INDICATIONS:

In category I indications TEE is frequently useful in improving outcome; these cases are supported by the strongest evidence, or expert opinion.

These indications were first published in 1996 by the American Society of Anesthesiologists (ASA) and the Society of Cardiovascular Anesthesiologists (SCA).

They are likely somewhat outdated, and are not listed in the content outline for the PTEeXAM (<<http://www.echobords.org/pte/outline.html>>).

I would not waste time memorizing these lists, but I would read them and be familiar with them.

The Important thing to consider when performing a TEE is the risk/benefit ratio. If the information gained by doing the exam will potentially change management, and improve patient care, and the patient is at low risk for complications, then the exam should be performed.

This has to be determined on a case by case basis.

Category I indications:

- Evaluation of acute, persistent and life-threatening hemodynamic instability in the operating room, or ICU in which ventricular function and its determinants are uncertain and have not responded to treatment.
- Intraoperative use in valve repair.
- Intraoperative use in congenital heart disease for most lesions requiring cardiopulmonary bypass.
- Intraoperative use during repair of hypertrophic obstructive cardiomyopathy.
- Intraoperative use for endocarditis when preoperative testing was inadequate or extension of infection to perivalvular tissue is suspected.
- Intraoperative assessment of aortic valve function in repair of aortic dissections.
- Intraoperative evaluation of pericardial window procedures.

Category II indications are supported by weaker evidence or expert opinion. TEE may be useful in improving outcome in these cases.

Category II indications:

- Perioperative use in patients at increased risk of myocardial ischemia or infarction.
- Perioperative use in patients at increased risk of hemodynamic disturbances.
- Intraoperative assessment of valve replacement
- Intraoperative assessment of repair of cardiac aneurysms
- Intraoperative evaluation of removal of cardiac tumors
- Intraoperative detection of foreign bodies
- Intraoperative detection of air emboli during cardiectomy for heart transplantation and during upright neurological procedures.
- Intraoperative use during intracardiac thrombectomy or pulmonary embolectomy
- Intraoperative use for suspected cardiac trauma
- Preoperative assessment of patients with suspected acute thoracic aortic dissections, aneurysms or disruptions.
- Intraoperative use during repair of thoracic aortic dissections without suspected aortic valve involvement.
- Intraoperative evaluation of pericardectomy, pericardial effusion or evaluation of pericardial surgery. (note pericardial window is a class I indication)
- Intraoperative evaluation of anastomotic sites during heart and/or lung transplantation.
- Monitoring placement and function of assist devices.

Category III indications are supported by little current scientific evidence or expert support. TEE is infrequently useful in improving outcome.

Category III indications:

- Intraoperative evaluation of myocardial perfusion, coronary artery anatomy, graft patency or cardioplegia administration.
- Intraoperative use during cardiomyopathies other than hypertrophic cardiomyopathy.
- Intraoperative use for uncomplicated endocarditis during non-cardiac surgery.
- Intraoperative assessment of repair of thoracic aortic injuries.
- Intraoperative use for uncomplicated pericarditis
- Intraoperative evaluation of pleuropulmonary diseases
- Monitoring placement of intra-aortic balloon pump, automatic implantable cardiac defibrillators or pulmonary artery catheters.

Absolute contraindications to TEE include:

- Esophageal strictures, webs or rings
- Patient refusal
- Esophageal perforation
- Obstruction esophageal neoplasms
- Tracheoesophageal fistula
- Postesophageal surgery (esophagectomy/esophagogastrectomy)
- Esophageal trauma

Some consider cervical spine instability to be an absolute contraindication, but the latest articles do **not** include this.

Possible Complications of TEE include:

- Dysphagia
- Vocal cord paralysis
- Odynophagia
- Tracheal compression
- Left atrial compression
- Great vessel compression
- Inadvertent extubation
- Esophageal perforation (0.01-0.02%)

References:

1. Practical Perioperative Transoesophageal Echocardiography, Sidebotham, D et al. 1st ed. page 2.

2. Shanewise JS, Cheung AT, Aronson S, Stewart WJ, Weiss RL, Mark JB, Savage RM, Sears-Rogan P, Mathew JP, Quinones MA, Cahalan MK, Savino JS: ASE/SCA guidelines for performing a comprehensive intraoperative multiplane transesophageal echocardiography examination: recommendations of the American Society of Echocardiography Council for Intraoperative Echocardiography and the Society of Cardiovascular Anesthesiologists Task Force for Certification in Perioperative Transesophageal Echocardiography. J Am Soc Echocardiogr 1999; 12: 884-900

3. Cahalan MK, Stewart W, Pearlman A, Goldman M, Sears-Rogan P, Abel M, Russell I, Shanewise J, Troianos C: American Society of Echocardiography and Society of Cardiovascular Anesthesiologists task force guidelines for training in perioperative echocardiography. J Am Soc Echocardiogr 2002; 15: 647-52

4. Mathew JP, Glas K, Troianos CA, Sears-Rogan P, Savage R, Shanewise J, Kisslo J, Aronson S, Shernan S: American Society of Echocardiography/Society of Cardiovascular Anesthesiologists recommendations and guidelines for continuous quality improvement in perioperative echocardiography. J Am Soc Echocardiogr 2006; 19: 1303-13

5. Comprehensive textbook of Transesophageal Echocardiography, by Savage R.M. et al 1st ed. page 108.

6. Anesthesiology 2010;112:1084-1096