Transesophageal Echocardiography in Children: An Interactive Session on Common Congenital Cardiac Defects

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Objective:

At the conclusion of this workshop the participant should have a better understanding of the applications of transesophageal echocardiography (TEE) in congenital heart disease and how to evaluate the most common structural defects.

Syllabus:

Approximately 32,000 infants in this country are born each year with congenital heart disease, translating to 1 out of every 115 to 150 births. Detailed characterization of the nature and severity of cardiovascular anomalies is of fundamental relevance in establishing the definitive diagnosis, formulating management plans and in the application of appropriate medical and surgical strategies in these patients. Echocardiography is considered the primary noninvasive imaging modality in the structural and functional assessment of congenital cardiovascular malformations. The many advantages of this approach include widespread availability, ease of use, familiarity with a well-established technology and cost effectiveness. In most infants and children with congenital heart disease echocardiography is sufficient for definitive diagnosis, medical and surgical planning.

Over the last several decades the diagnostic capabilities of echocardiography have further been enhanced by the use of the transesophageal imaging approach. During cardiovascular surgical interventions in children with structural and acquired heart disease, transesophageal echocardiography allows for real-time clinical decision-making, hemodynamic monitoring and immediate assessment of surgical results. This technology also plays an important role in the catheterization laboratory in guiding and monitoring of interventional procedures and evaluating their successes, failures and complications. By overcoming limitations related to poor windows, suboptimal image quality or lung interference, this modality is able to facilitate morphologic and functional assessment in a subset of patients with congenital and acquired cardiovascular pathology.

The interactive session will focus on the role of transesophageal echocardiography for evaluation and monitoring of congenital heart surgery and the benefits of this technology.

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QUESTIONS:

1. Transesophageal echocardiography has been shown to be of benefit during:
   a) closure of septal defects
   b) interventions in the cardiac catheterization laboratory
   c) in adult patients with congenital heart disease and poor acoustic windows
   d) drainage of pericardial effusions
   e) all of the above

2. Contraindications to TEE in pediatric patients include all EXCEPT for:
   a) recent esophageal surgery
   b) severe coagulopathy
   c) aortic coarctation
   d) vascular ring
   e) severe respiratory depression

3. Regarding TEE in general, the following is a TRUE statement:
   a) endocarditis prophylaxis is recommended for all patients
   b) gastric perforation has been reported as a complication in children
   c) only trained cardiologists are allowed by law to manipulate the probe
   d) it is used in all patients undergoing surgery for congenital heart disease
   e) the use of adult TEE probes is contraindicated in children

4. With regards to the commercially available biplane pediatric TEE probe, the following is the only CORRECT statement:
   a) the probe cannot be used for transgastric imaging
   b) the probe is able to generate all the images provided by a multiplane TEE transducer
   c) the dimensions of the probe tip are substantially different than those of the multiplane device
   d) the controls to change between the transverse (0 degrees) and longitudinal imaging planes (90 degrees) are not available at the probe handle
   e) the protocol for cleaning this probe differs from the one that applicable to single plane devices

5. Regarding TEE the following statement is FALSE:
   a) technical skills necessary for TEE of congenital heart disease include the ability to achieve standard views
   b) at least 40% of the questions in the examination of Special Competence in Perioperative TEE (PTEeXAM) relate to congenital heart disease
   c) TEE is fun
   d) TEE in small infants may be associated with hemodynamic compromise

e) an official report should be generated regarding the TEE findings for documentation and billing purposes