Introduction to Transesophageal Echocardiography
The Focused Basic Exam for Non-cardiac Surgery (FBE-TEE)

LEARNING OBJECTIVES

Saturday, February 7, 2009

7:30-7:45 What You Know Now: Pre-Test – Gregg Hartman, MD
This session will serve as an introduction and overview of the course. Several example questions of what one would be expected to know upon completion of the course will be presented.

7:45-8:15 FBE-TEE: Why, Where and by Whom - Robert Savage, MD
Origins and goals of the Focused Basic Exam

Objectives: Upon conclusion of this lecture the attendee should have an understanding of the:
1. Origins and purpose of the FBE-TEE.
2. Target audience for performance of a FBE-TEE examination.
3. Fundamental concepts pertaining to the clinical application of intraoperative TEE presented in a moderated, self-assessment pre-test format followed by a moderated post-test question and answer session.

8:15-8:45 How are TEE Images Created? - Jack Shanewise, MD
2-D image Generation
Doppler Imaging Modalities

Objectives: Upon conclusion of this lecture the attendee should have an understanding of:
1. Ultrasound image generation.
2. The basic physics of ultrasound and its use for medical imaging.
3. The utility and applications of Doppler color flows imaging.

8:45-9:15 Making a Perfect Picture - Stanton Shernan, MD
Knobology
Image Optimization

Objective: Upon conclusion of this lecture, the attendees will understand basic TEE knobology platforms and common imaging controls used to obtain and optimize two dimensional and Doppler images.

9:45-10:30 You’re in the Driver’s Seat - Stanton Shernan, MD; Gregg Hartman, MD
Knobology and Image Optimization Workshop
Live-demonstration session

Objectives: Upon conclusion of this lecture the attendee should have:
1. An understanding of the operation and optimization of TEE ultrasound.
2. A working knowledge of echocardiography platform knobology and how to utilize them to optimize image quality.

10:30-11:00 Let’s Have a Look at Your Heart – Douglas Shook, MD
Cardiac Anatomy: Surface and Internal Anatomy
Lecture plus Anatomical Sections (Pro-section), Surface Anatomy and TEE Views
LV & RV, Aortic Valve and Ascending Aorta

**Objectives**: Upon conclusion of this lecture the attendee should:
1. Have an understanding of surface anatomy of the heart.
2. Understand the 2-D TEE planes and their anatomical correlates.

11:00-11:30  **TEE Probe Manipulation** - Gregg Hartman, MD
Probes manipulations and scan planes

**Objective**: Upon conclusion of this lecture the attendee should have understanding of the various TEE probe manipulations and their effect on rendered imaging planes.

11:35- 12:00  **What You Should Examine** - Jack Shanewise, MD
Basic Examination and Standard Views

**Objectives**: Upon conclusion of this lecture the attendee should be:
1. Knowledgeable of the basic FBE-TEE exam, the relevant anatomy and the corresponding scan planes.
2. Familiar with a reliable sequence for the FBE-TEE exam.
3. Familiar with the indications and contraindications of a FBE-TEE exam.

1:00 – 3:00  **The Roster**
Identification of Cardiac Structures
Left Ventricle - Robert Savage, MD
Mitral Valve - Stanton Shernan, MD
Aortic Valve - Gregg Hartman, MD
Thoracic Aorta/Pericardium - Jack Shanewise, MD
RV/TV/PV - Douglas Shook, MD
LA/RA/PulV/LAA/Liver - Kathy Glas, MD

**Objective**: Upon conclusion of this lecture the attendee should have been exposed to a series of unknown cases involving recognition of cardiac anatomy, the thoracic aorta and pericardium, the right ventricle, the pulmonic and tricuspid valves, the left and right atria and their appendages and the surrounding pericardial, pleural and abdominal structures.

3:30-4:00  **What in the World are These?** - Stanton Shernan, MD; Gregg Hartman, MD
Anatomical Unknowns and Examples

**Objectives**: Upon conclusion of this lecture the attendee should have been exposed to:
1. A series of unknown cases involving recognition of cardiac anatomy.
2. Examples of anatomical structures and their TEE signatures.

4:00- 4:30  **Going with the Flow** - Gregg Hartman, MD
Color Flow Doppler Assessment of AV and MV
Objective: Upon conclusion of this lecture the attendee should have become familiarized with the principles and application of Doppler color flow in the assessment of the normal aortic and mitral valve.

4:30-5:00

Summing it All Up - Kathy Glas, MD
A complete focused TEE examination
Report
Archiving

Objective: Upon conclusion of this lecture the attendee should have an understanding of the complete FBE-TEE exam and the necessary reporting and archival responsibilities.


Sunday, February 8, 2009

8:00-8:30  
Cardiac Anatomy - Douglas Shook, MD  
Heart Prosection-demonstration  
Mitral Valve, Tricuspid & Pulmonic Valves, Right and Left Atrial Structures

Objective: Upon conclusion of this lecture the attendee should have a better understanding of the anatomy and correlating TEE views of the mitral valve, the tricuspid and pulmonic valves, and the right and left atrial structures.

Participants will be exposed to prosected porcine hearts.

8:30-9:00  
The Pressure is On - Gregg Hartman, MD  
Quantitative Echo I

Objective: Upon conclusion of this lecture the attendee should have an understanding of the basic principles for the quantitative use of TEE ultrasound.

9:00-9:30  
Basic Hemodynamics - Robert Savage, MD  
Quantitative Echo II  
Basic Hemodynamic Calculations & Examples

Objective: Upon conclusion of this lecture the attendee should understand how to apply Doppler derived echocardiography data to perform hemodynamic calculations. Examples will be discussed illustrating the application of these modalities.

10:00-12:00  
The Broken Heart  
Cardiac Pathology Workshop
LV + RV Global Function - Robert Savage, MD  
Pericardial + Pleural Effusions - Kathy Glas, MD  
Aortic Stenosis - Gregg Hartman, MD  
Aortic Insufficiency - Jack Shanewise, MD  
Mitral Stenosis - Douglas Shook, MD  
Mitral Regurgitation - Stanton Shernan, MD

Objectives: Upon conclusion of this lecture the attendee should:
1. Have a better understanding of the pathophysiology of ventricular function, aortic stenosis and insufficiency, mitral stenosis and insufficiency.
2. Understand what pericardial and pleural effusions appear like on TEE.
3. Understand the imaging planes required to recognize the above pathologies.

12:15-12:45  
Show me the Money - Jack Shanewise, MD  
A Focused TEE Service  
Setup/reimbursements/staffing/billing

Objective: Upon conclusion of this lecture the attendee should have been made aware of the set-up, provision, billing and staffing issues as well as reimbursement for a TEE service.
1:00 – 1:30  **It's All in the Motion** - Stanton Shernan, MD  
LV and RV RWMA  

*Objective*: Upon conclusion of this lecture the attendee should have an increased understanding of the echocardiographic appearance of left and right ventricular dysfunction. Qualitative and quantitative assessment methods will be introduced.

1:30-2:00  **Rescue TEE** - Kathy Glas  
PA vs TEE  
Non-cardiac Case Studies  

*Objective*: Upon conclusion of this lecture the attendee should have a better understanding of the utility and limitations of a pulmonary artery catheter vs. the FBE-TEE examination. Emphasis will be on non-cardiac surgery case examples

2:00-2:30  **Why is My Patient Blue?** - Douglas Shook, MD  
ASDs, PFOs, Shunts  

*Objective*: Upon conclusion of this lecture the attendee should have been exposed to the utility of the FBE-TEE examination in the work-up of a patient who presents with cyanosis. Emphasis will be on the detection and quantitation of intracardiac shunts (ASDs, VSDs).

2:30-3:00  **Seeing is Believing** - Gregg Hartman, MD  
Ultrasound for Vascular Access  

*Objectives*: Upon conclusion of this lecture the attendee should have:  
1. Been exposed to the relevant anatomy and echocardiography picture of central veins.  
2. Been exposed to the application of 2D imaging during central venous cannulation.  
3. An increased appreciation of the role 2D ultrasound has played in the prevention of complications and in the improvement in cannulation success rates during central venous access.

3:00-3:30  **What Do All Those Letters Mean?** - Stanton Shernan, MD  
TEE Certification  
FBE vs. PTeEXAM  

*Objectives*: Upon conclusion of this lecture the attendee should understand the:  
1. Various certification processes  
2. Differences between the FBE and the PTeEXAM

4:00-5:00  **My Patient is Sick, What can I Do?** - Bob/Stan/Kathy/Jack  
Case Examples  

*Objectives*: Upon conclusion of this lecture the attendee should:  
1. Have been exposed to the utilization of the FBE-TEE examination in the management of the patient with hemodynamic instability of unknown origin.
2. After the completion of this lecture, the attendees will understand the fundamental concepts pertaining to basic principles and clinical applications of intraoperative transesophageal ultrasound presented in a moderated, self-assessment pre-test format followed by a moderated post-test question and answer session.

5:00-5:15  
Post Test and Wrap-up
This session will consist of a summary and wrap-up of the two day course. A brief examination and discussion of the answers will follow to illustrate participants’ achievements.