The Focused Assessed Transthoracic Echo (FATE) Exam at the Bedside

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Objectives:

• Outline the evolution of ultrasound in the critical care setting
• Demonstrate the windows and views of the FATE echo evaluation
• Review the basic knobology to allow for optimal image acquisition
Focused Assessed Transthoracic Echo Exam at the Bedside

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Focused Cardiac Ultrasound Evaluation of Shock

- Left ventricular systolic function
- Right ventricular size and function
- Volume assessment
- Pericardial Tamponade
- Valvular function
Echocardiography as Point of Care Evaluation of Shock
Focused Assessed Transthoracic Echocardiography
FATE Exam
Subcostal
Sub-Costal
Inferior Vena Cava
Left parasternal long axis
Left Parasternal Long Axis
Left Parasternal Short Axis
Apical 4-Chamber
What is the window and view?
What are the findings?
Left Parasternal Long Axis

Hyperdynamic

Severe LV Dysfunction
What is the window and view?
What are the findings?
Left Parasternal Short Axis

Hyperdynamic  Severe LV Dysfunction
Hyperdynamic LV Function

Echo and PAC Findings in Hemodynamically Unstable Patients

<table>
<thead>
<tr>
<th></th>
<th>Contractility</th>
<th>EDA</th>
<th>ESA</th>
<th>FAC</th>
<th>CI</th>
<th>PAWP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypovolemia</td>
<td>Vigorous</td>
<td>↓</td>
<td>↓</td>
<td>↔</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Low SVR</td>
<td>Vigorous</td>
<td>↔</td>
<td>↓</td>
<td>↑</td>
<td>↑</td>
<td>↔</td>
</tr>
<tr>
<td>Systolic Dysfunction</td>
<td>Impaired</td>
<td>↑</td>
<td>↑</td>
<td>↓</td>
<td>↓</td>
<td>↑</td>
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</table>
Estimation of CVP

Guidelines for the Echocardiographic Assessment of the Right Heart in Adults: A Report from the American Society of Echocardiography

(J Am Soc Echocardiogr 2010;23:685-713.)

Table 3 Estimation of RA pressure on the basis of IVC diameter and collapse

<table>
<thead>
<tr>
<th>Variable</th>
<th>Normal (0-5 [3] mm Hg)</th>
<th>Intermediate (5-10 [8] mm Hg)</th>
<th>High (15 mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVC diameter</td>
<td>≤2.1 cm</td>
<td>≤2.1 cm</td>
<td>&gt;2.1 cm</td>
</tr>
<tr>
<td>Collapse with sniff</td>
<td>&gt;50%</td>
<td>&lt;50%</td>
<td>&gt;50%</td>
</tr>
</tbody>
</table>
What is the window and view?
What are the findings?
Apical 4-Chamber

Hyperdynamic

Severe LV Dysfunction
What is the window and view?
What are the findings?
Apical 4-Chamber Right Heart Dysfunction
Not due to Pulmonary Embolus
What is the window and view?
What are the findings?
Acute Pulmonary Embolus
What is the clinical finding?
Pericardial Tamponade
Echocardiography in Critical Care

- Obtain training
- Acquire an ultrasound system
- Mentored practice in a controlled setting
- Know your limitations