Optimization of Duplex Exam Image

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Disclosures
None

- Automated image optimization functions and pre-sets for gain, color flow, pulsed Doppler are somewhat unreliable
- Factory venous pre-sets are not one size fits all

Transducer Frequencies

- Mode 1: higher frequency mode that provides higher resolution with less penetration
- Mode 2: lower frequency mode that provides more penetration at slightly lower resolution

- Optimal Gain: contains a mixed range of signals that are low to high in amplitude
- Over Gain: obliterating the signal and losing image detail
- Under Gain: high potential to miss disease
Optimization of Frequency, 2D Gain, TGC, Focal Zone and Depth

Poorly optimized image
BMI 28, HT 5’7”, 180 lbs
Near Field
Far Field

Optimization of Color Gain
Under Gain
Over Gain
Optimal Gain

Under Gain
Over Gain
Optimal Gain

Optimization Includes Patient Positioning
Reverse Trendelenburg Position
Standing Position
Minimal Sweep Speed
Minimal Sweep Speed

Optimization for Ilio-Caval Confluence
- Curved array transducer
- Factory default setting with optimized gain
- Large sector width
- Frame rate 26Hz
- Chroma tint

- Narrow sector width
- Frame rate 63Hz
- Gain adjusted
- TGC’s adjusted
- Chroma tint

Image depth 20 cm
Vessel depth 13.5 cm
BMI 45
HT 6’1”
352 lbs
Spine
Penetration
Harmonics

Conclusion
• There should be no excuse for lack of image optimization with the exception of system malfunction
• With the available tools, standards should be set to produce high quality images to accurately answer clinical questions

Thank You
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