Contrast Enhanced Imaging
Case Studies

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Estimate LV Function...
65 y/o Man Admitted with Chest pain

What is Your Diagnosis?
Saline contrast injection

ASE CONSENSUS STATEMENT

American Society of Echocardiography Consensus Statement on the Clinical Applications of Ultrasonic Contrast Agents in Echocardiography

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Mani A. Vannan, MBBS, Co-Chair, Sahar S. Abdelmalek, MD, MSc,
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Ramon Castello, MD, FASE, Patrick D. Coon, RDCC, FASE, Mary E. Hagen, RDCC, RN,
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Srirani Thanigaraj, MD, FASE, Kevin Wei, MD, Anna Wos, MD, Eric H. C. Yu, MD, and
William A. Zoghbi, MD, FASE,

Fundamental Harmonic

Echo In Technically Difficult ICU Patients

Contrast TEE Visualization of Endocardium in Technically Difficult patients

Yong Y. et al  Am J Cardiol. 15;89:711, 2002
Impact of Contrast on Evaluation of LV Function & Management in Clinical Practice

4362 consecutive TTEs (June-October 2007)

Suboptimal echo determined by sonographer (n=632)

Optimal echo – no contrast (n=3730)

Management Input from referring physician:
• First, immediately after unenhanced suboptimal echo
• Second, after review of enhanced echo

Analysis of impact of enhanced echo on the following:
drug management, additional tests, procedures

Contrast Improves Echo Quality in Multiple Settings

Before Contrast

After Contrast

Kurt M et al. JACC 2009 Mar 3;53(9):802-810.
Contrast Reduces the Need for Additional Procedures

- **Inpatient Wards (n=365):**
  - TEE Avoided: 68.70%
  - Nuclear Imaging Avoided: 25.80%
  - No Procedure Change: 5.50%

- **MICU (n=78):**
  - TEE Avoided: 66.60%
  - Nuclear Imaging Avoided: 16.70%
  - No Procedure Change: 16.70%

- **SICU (n=102):**
  - TEE Avoided: 45.10%
  - Nuclear Imaging Avoided: 31.40%
  - No Procedure Change: 23.50%

- **Outpatient (n=87):**
  - TEE Avoided: 87.40%
  - Nuclear Imaging Avoided: 10.30%
  - No Procedure Change: 2.30%

Sources:
- Kurt M et al. JACC 2009 Mar 3;53(9):802

Excludes & May Uncover the Presence of Thrombus

**Clinical Assessment** | **Before Contrast** | **After Contrast** | **P<0.001**
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Suspected thrombus | 35 | 1 |  
Definite thrombus | 3 | 8 |  

Sources:
- Kurt M et al. JACC 2009 Mar 3;53(9):802
Impact of Contrast on Medication Changes

Contrast Effect on Patient Management

~$120 savings per patient
Relation of Extent of Non-visualized Segments to Contrast Impact on Management

Number of Non-Visualized Segments Before Contrast

Kurt M et al. JACC 2009 Mar 3;53(9):802

Contrast Echocardiography

- Improves endocardial border definition in suboptimal studies
- Enhances interpretation of regional and global ventricular function
- Rescues un-interpretable studies (eg. ICU)
- Improves quality of care: better diagnostic accuracy, enhanced management and avoidance of more costly or invasive procedures
- Is cost-effective and adds value in Patients with suboptimal echo studies