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Efficacy of miniaturized imacor trans-esophageal echocardiografm (TEE) prove in mechanical circulatory support.

Hitoshi Hirose
*Thomas Jefferson University, Hitoshi.Hirose@Jefferson.edu*

Christopher Y. Kang
*Thomas Jefferson University, christopher.kang@jefferson.edu*

Joshua K. Wong
*Thomas Jefferson University*

Harrison T. Pitcher
*Thomas Jefferson University, Harrison.pitcher@jefferson.edu*

Caitlyn M. Johnson
*Thomas Jefferson University, Caitlyn.Johnson@jefferson.edu*

*See next page for additional authors*

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Authors
Hitoshi Hirose, Christopher Y. Kang, Joshua K. Wong, Harrison T. Pitcher, Caitlyn M. Johnson, Konrad Sarosiek, Linda J Bogar, and Nicholas C. Cavarocchi
In the surgical cardiac intensive care unit (ICU), therapeutic interventions often need to be done at the bedside, necessitating the need for a rapidly employable diagnostic tool for the cardiac intensivist. Cardiac function and volume status are critical components to patient care. Intravascular volume status is difficult to establish. Current modalities use indirect methods to gather data which can misdirect patient care. Conventional TTE and TEE are unsuitable for continuous and effective hemodynamic assessment.

**Introduction**

In a retrospective review of mechanical circulatory support patients and post heart transplant patients who had ImaCor TEE (hTEE) monitoring, we aimed to evaluate the effectiveness of this new device compared to traditional TEE.

**Methods**

We conducted an IRB approved retrospective review of mechanical circulatory support patients and post heart transplant patients who had hTEE monitoring in ICU. 3 categories of intervention based on hTEE were identified:

- **Major**: Tamponade, ECMO wean
- **Moderate**: Device wean, inotrope management, fluid and hemodynamic management
- **Minor**: ECMO cannula placement, other data

**Contact**

Nicholas C. Cavarocchi, MD  
Associate Professor of Surgery  
Critical Care Director, Surgical Intensive Care Unit  
nicholas.cavarocchi@jefferson.edu

**Results**

- **N = 34 patients with hTEE monitoring**
- **N = 21 post MCS or HTX**
  - Devices employed:
    - ECMO: 13
    - Post LVAD: 9
    - Impella: 3
    - Post HTX: 4
    - Pts with multiple: 6

**ImaCor hTEE Probe**

- A miniaturized TEE probe
- FDA approved
- Allows real-time monitoring, able to use for 72 hours continuously.
- Allows direct visualization of intravascular volume and cardiac function
- No need of anesthesia or sedation.

**Financial**

The cost difference between this new device and the traditional TEE is significant ($900 USD vs $4600 USD). Our institution saved in excess of $150,000 USD with the use of this device instead of traditional TEE.

**Conclusions**

This device has proven to be an invaluable new adjunct in the ICU by allowing previously unobtainable continuous real-time monitoring of MCS/Post HTX.

The use of the ImaCor hTEE probe provides the intensivist with timely important clinical data that improves patient care and is economically advantageous. Using serial hTEE data, the clinician can reliably make accurate decisions in regards to operative interventions.