Real-Time Visualization During TEE Probe Placement Supports First Pass Intubation Success with No Adverse Events

David M. Harmon Jr. MD, Mayo Clinic, Rochester, MN, USA
Katie A. Young MD, Mayo Clinic, Rochester, MN, USA
Jared G. Bird MD, Mayo Clinic, Rochester, MN, USA
Sunil V. Mankad MD, Mayo Clinic, Rochester, MN, USA

BACKGROUND

Transesophageal echocardiography (TEE) intubation is usually performed in a blinded fashion using only tactile perception and can lead to esophageal injury or failed intubation, especially in high risk cases. A TEE Camera Assist Device (TEECAD) is a small LED digital camera that attaches to the end of a TEE probe that allows for real-time visualization of the esophagus and surrounding anatomy during TEE intubation. A combined visual and tactile approach may reduce intubation times, complications, and increase workflow efficiency. We review the use of TEECAD in 115 patients at Mayo Clinic-Rochester.

METHODS

TEECAD was used on 115 consecutive patients undergoing TEEs from Jan 2023 to Sept 2024. Ages ranged from 42 to 83 with indications including complex valvular disease and structural heart interventions. TEEs were performed in ICU and echo procedure rooms.

RESULTS

All TEEs used TEECAD attached to a TEE adult probe. Intubation time from insertion in oral cavity to correct probe placement improved from one minute in cases performed in 2023 to < 30 seconds in 2024. First pass success was achieved in 110 of 115 cases, and all cases were successfully intubated. No adverse events or complications were observed.

Real-time visualization of the esophageal inlet during TEE procedures with the TEECAD system provided safe and effective probe placement with short intubation times and promotion of first pass success with no adverse events in a 115 patient series.

Real-time esophageal inlet visualization may become increasely used in TEEs as it plays an important role in improving workflow efficiency and reducing complications.

MAYO CLINIC

For more information,
harmon.david@mayo.edu

ACC.25

CONCLUSION

This series demonstrates that real-time visualization provided by TEECAD allowed for multiple operators to provide safe and effective probe intubation with short intubation times and promotion of first pass success with no adverse events. Real-time visualization may become increasingly used in TEEs as it plays an important role in improving TEE intubation times and reducing complications.

FIGURE 1

Physician confirming esophageal inlet visualization with TEECAD System.

FIGURE 2

Esophaeal inlet typically presents as dark opening at bottom of screen.

FIGURE 3

Esophageal inlet can also be identified by secretions, which present as clear bubble rings surrounding the inlet.

DISCLOSURE INFORMATION

No author disclosures.