

# Procedural Time Reduction With Active Esophageal Cooling During Radiofrequency Ablation: A Multi-Operator Review

Julie Cooper MD<sup>1</sup>, Christopher Joseph BA<sup>1</sup>, Alex Ro MD<sup>2</sup>, Westby G. Fisher MD<sup>2</sup>, Jacob Sherman<sup>3</sup>, Jose Nazari MD<sup>2</sup>, Erik Kulstad, MS, MD<sup>1</sup>, and Mark Metzl MD<sup>2</sup>  
1. University of Texas Southwestern Medical Center, Dallas, TX, 75390, USA 2. NorthShore University Health System, Evanston, IL, 60201 3. Washington University in Saint Louis, Saint Louis, MO, 63130



## Introduction/Objective

Active esophageal cooling is increasingly being used to protect the esophagus during RF ablation. Recent data suggest that in addition to having safety and long-term outcome benefits, active esophageal cooling may also have procedural benefits(1-3). We therefore conducted, with multiple operators, a large analysis of procedural times.

## Purpose

To determine procedural times for radiofrequency (RF) ablations to obtain pulmonary vein isolation (PVI) using either active esophageal cooling or luminal esophageal temperature (LET) monitoring to protect the esophagus.

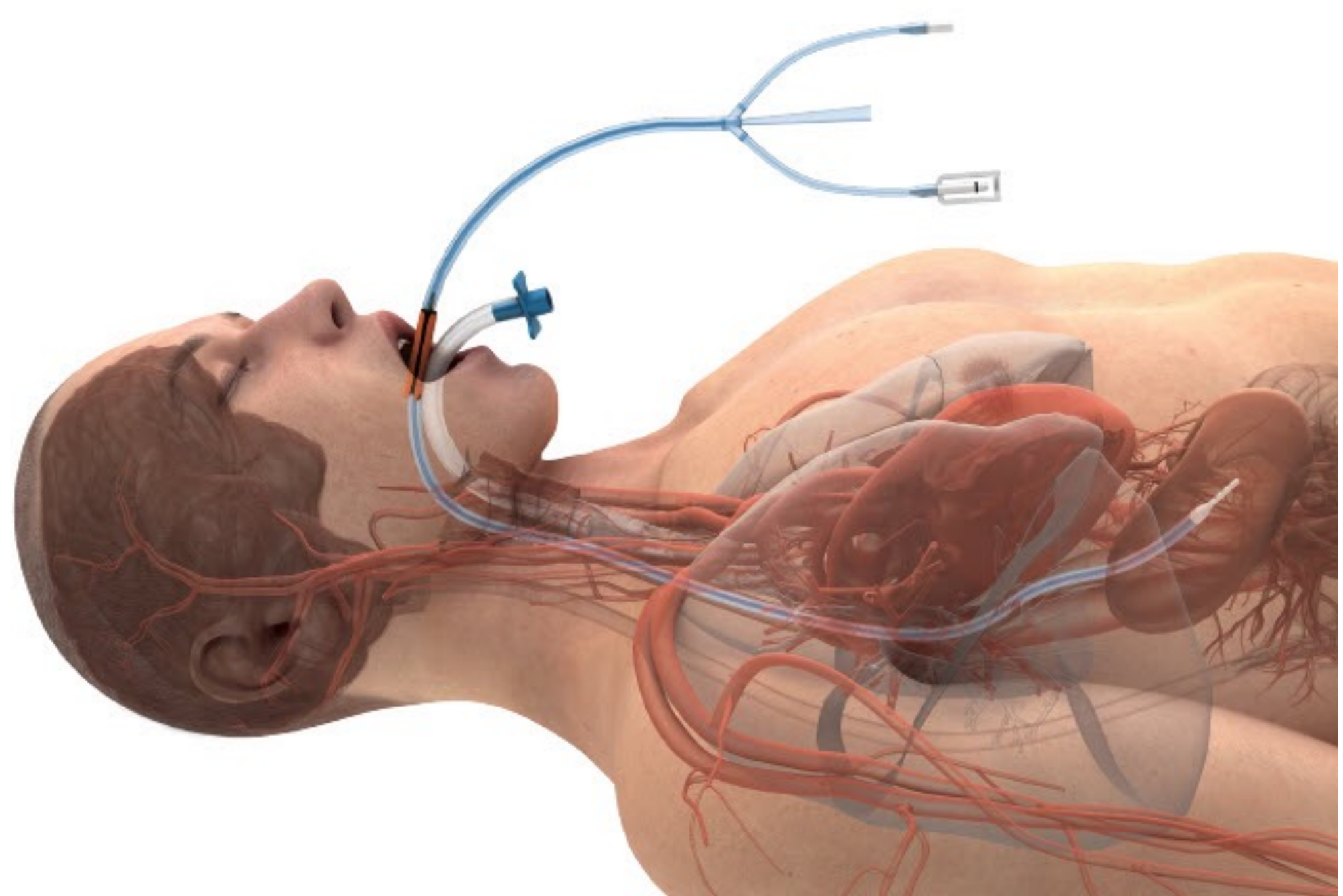


Figure 1: Active esophageal cooling device (Attune Medical, Chicago, IL)

Author contact information: Julie.Cooper@UTSouthwestern.edu

## Methods

We reviewed procedural data from a high-volume electrophysiology group made up of 4 electrophysiologists operating out of a two-hospital healthcare system. All RF ablations for PVI performed from February 2020 through September 2021 were included in the review, and no patients were excluded. Procedural times were obtained from the electronic health record, and results were compared to published historical data from this same group for ablations using LET monitoring.

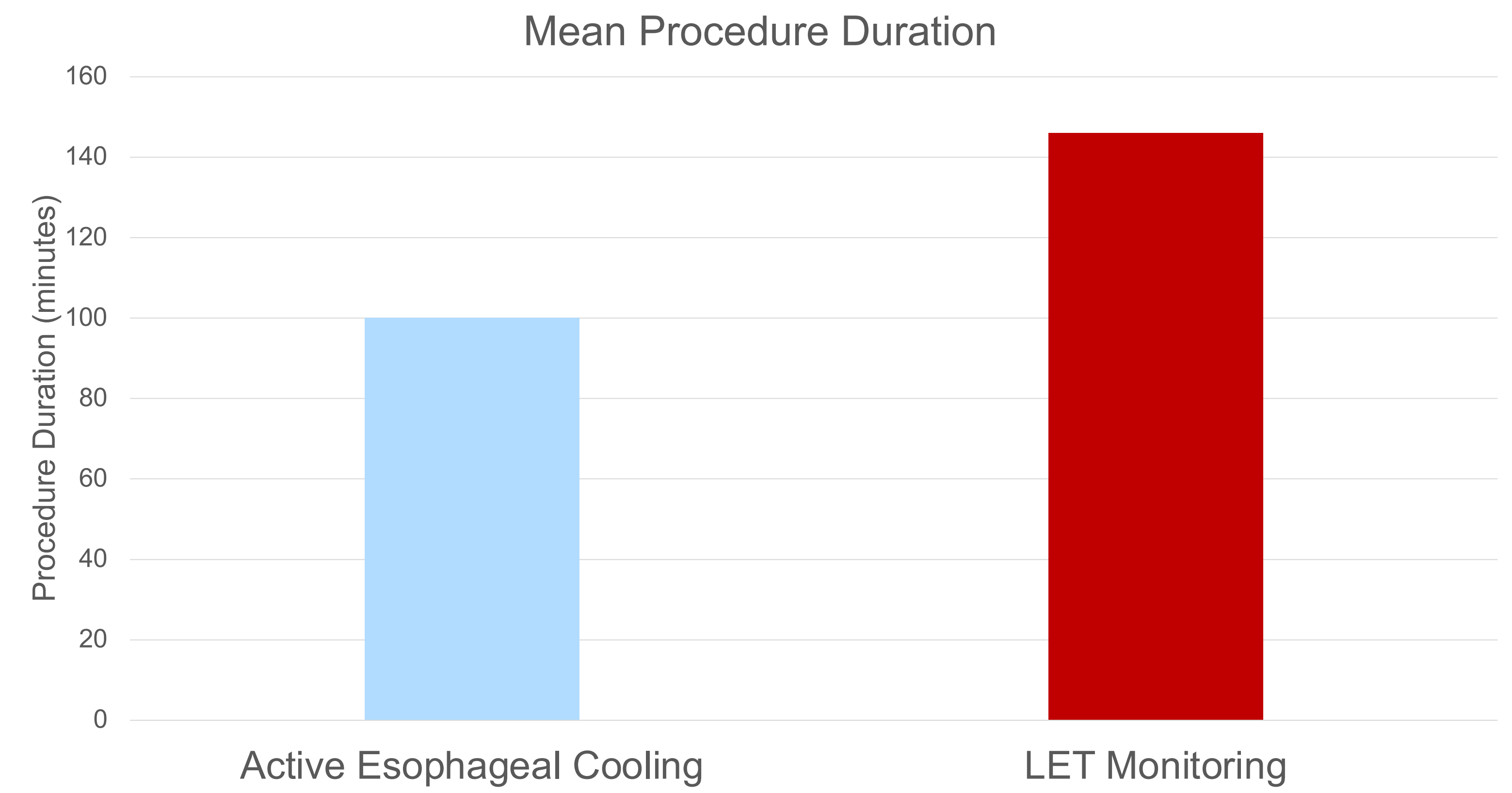


Figure 2: Mean procedure duration compared between patients treated with active esophageal cooling and patients treated with LET monitoring.

Declaration of Interests: JC: Research funding from Attune Medical; CJ: Internship with Attune Medical; AR: None; WF: None; JS: Summer employment with Attune Medical; JN: None; EK: equity and employment in Attune Medical; MM: Consulting for Abbott, Biosense Webster, Attune Medical, Medtronic, Sanofi Aventis, and Philips

## Results

A total of 560 patients were treated with active esophageal cooling over the study time frame. Mean and median procedure duration was 100 minutes (SD 46 minutes) and 95 minutes (interquartile range 69 to 123 minutes), respectively. This compares to LET mean and median procedure times of 146 minutes (SD 51 minutes) and 141 minutes (interquartile range 104 to 174 minutes), respectively ( $p < 0.001$ ).

## Conclusions

Active esophageal cooling during RF ablation is associated with significantly reduced procedure duration compared to procedures using LET monitoring.

## References

1. Leung LWM, Bajpai A, Zuberi Z, Li A, Norman M, Kaba RA, Akhtar Z, Evranos B, Gonna H, Harding I et al: Randomized comparison of oesophageal protection with a temperature control device: results of the IMPACT study. *Europace* 2021, 23(2):205-215 PMID: 33205201.
2. Joseph C, Sherman J, Ro A, Fisher WG, Nazari J, Metzl M: Procedural time reduction associated with active esophageal cooling during pulmonary vein isolation. *J Interv Card Electrophysiol* 2022 PMID: 35416632.
3. Joseph C, Nazari J, Zagrodzky J, Brumback B, Sherman J, Zagrodzky W, Bailey S, Kulstad E, Metzl M: Improved 1-year outcomes after active cooling during left atrial radiofrequency ablation. *J Interv Card Electrophysiol* 2023 PMID: 36670327.