atrioesophageal fistula, AEF). Repeated EGD was performed within 1-14 days after the first EGD until healing signs were observed.

Results: Esophageal lesions were detected by initial EGD in 62 patients (mean age: 64.2 ± 13.0, female: 43.5%, 21%; type 1, 50%; type 2a, 29%; type 2b) and 43 patients underwent repeated EGDs. In these 43 patients, all lesions showed healing signs in repeated EGD within 14 days after ablation but one type 2b lesion which showed enlarging injury in repeated EGD and finally developed into an AEF.

Conclusion: We showed that all ETIs which did not progress to AEF showed signs of healing in repeated EGD within 14 days after the procedure. Worsening ETI diagnosed by repeated EGD may be a sign for developing esophageal perforation and provide the basis for more aggressive treatment strategy to lower risk of AEF.

Results: Of the 20,000 esophageal temperature control devices used, 7120 were recorded as having been used for the purpose of esophageal protection during left atrial catheter ablations. A total of 5 events associated with the device were identified, all from the MAUDE database. Three were from 2017, one from 2018, and one from 2019. All involved its use in critical care or trauma patients and were related to user error or contraindicated patient selection; none resulted in serious harm to the patient. No adverse events occurred related to its use during left atrial catheter ablations. No case of clinically significant esophageal injury was reported in a patient who had been protected by the esophageal temperature control device.

Conclusion: Real world registry data has shown no adverse events reported to date in 7120 uses of an esophageal temperature control device during left atrial catheter ablations, for the purpose of active thermal protection.

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ANTERIOR WALL TEMPERATURE OF ESOPHAGUS DURING CATHETER ABLATION OF THE LA POSTERIOR WALL IS MARKEDLY HIGHER COMPARED TO LUMINAL TEMPERATURE

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Background: Esophageal injuries (ulceration, denuding of tissue or fistula development) are well-known complications from catheter ablation. Few studies have evaluated energy transfer between the posterior wall of the left atrium (LA), interstitium and esophagus.

Objective: To study energy transfer and lag time between tissues, we developed a porcine ex vivo heart-esophageal model to evaluate temperatures at critical regions during catheter ablation of the posterior LA wall.

Methods: We built a heart-esophageal model to perform ex vivo catheter ablation on the posterior wall of the LA, with juxtaposed interstitial tissue and esophagus. Circulating saline (3.5-5 L/min) was used to mimic blood flow along the LA and alteration of ionic content to vary impedance. Thermistors along the region of interest were used to analyze temperature gradients. Varying time and power, multiple RF ablations were applied with an externally irrigated ablation catheter. Ablation strategies were divided into standard approaches (SA, 25-35W, 30s) or high-power short duration (HPSD, 40-50W, 10s).

Results: At contact forces ranging from 10-15g, for both SA and HPSD, maximum temperature rise from baseline was markedly higher at the anterior wall (AW) of the esophagus compared to the esophageal lumen (SA: 3.47 °C vs. 0.98 °C; HPSD: 2.51 °C vs. 0.31 °C). Compared to HPSD (Figure), SA approaches exhibited significantly higher temperature rise (relative to baseline) at both the AW (3.47 °C vs. 2.51 °C, p<0.01) and within the esophageal lumen (0.98 °C vs. 0.31 °C, p<0.02). For SA, time from ablation onset to a 1 °C rise from baseline was 19.2 sec longer in the lumen relative to AW (45.25 sec vs. 26.04 sec, p<0.05). For HPSD, time from ablation onset to a 0.5 °C rise from baseline was 34.8 sec longer in the esophageal lumen relative to AW (39.10 sec vs. 4.31 sec, p<0.005).

Conclusion: Compared to HPSD, SA exhibits significantly higher AW and esophageal lumen temperature rises. From baseline, rise in AW temperature is >2 °C compared to the lumen with both approaches. Significant lag time exists between ablation onset and temperature rise measured at the AW and esophageal lumen.