

Evaluation of the efficacy and safety of the mechanical displacement in the esophageal heating prevention during atrial fibrillation radiofrequency ablation.

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Abstract

Introduction: As the pulmonary vein isolation (PVI) is the cornerstone of the atrial fibrillation (AF) ablation procedure, esophagus overheating has become a subject of great concern. **Objectives:** To assess whether the mechanical displacement of the esophagus (MDE), performed by a regular transesophageal echocardiogram probe (TEEP) may prevent esophagus overheating during the procedure. **Methods:** A 55 patient prospective-controlled study with paroxysmal or persistent AF in which RF delivery was stopped, whenever a sinusoidal probe with multiple thermocouples detected a luminal esophageal temperature (LET) elevation $[?]0.5^{\circ}\text{C}$. A LET elevation $<0.5^{\circ}\text{C}$ during RF delivery was considered the successful endpoint after performed the MDE. In some patients, diluted barium was instilled to highlight the esophagus boundaries. Esophagogastroduodenoscopy (EGD) was performed if there were any sign or symptom of esophagus injury after the procedure. **Results:** The MDE was necessary in 47 of the 55 subjects enrolled to correct LET elevation ($[?]0.5^{\circ}\text{degC}$). After the MDE, 41 of those 47 patients had a LET elevation $<0.5^{\circ}\text{degC}$, and none of them, had a LET elevation $[?]38.5^{\circ}\text{degC}$. The average basal LET was $35.71 \pm 0.12^{\circ}\text{degC}$. Immediately before the MDE, the average LET was $37.03 \pm 0.06^{\circ}\text{degC}$ and post-displacement was $35.83 \pm 0.08^{\circ}\text{degC}$. The displacement range average was $2.25 \pm 1.19\text{cm}$ (maximum: 6.17cm). After displacement, 100% of the esophagus remained in the same position. Of the total 14 patients who underwent EGD, 6 were normal, erosion was detected in 1 and superficial hematoma in 7. **Conclusion:** the MDE was effective and safe in preventing its overheating during RF catheter AF ablation.

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