LETTER TO THE EDITOR

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Role of oesophageal cooling in the prevention of oesophageal injury in atrial fibrillation catheter ablation

This is a response to the Letter to the Editor 'Oesophageal cooling for protection during left atrial ablations', by Leung *et al.*, https://doi.org/10.1093/europace/euad153, about the article 'Role of oesophageal cooling in the prevention of oesophageal injury in atrial fibrillation catheter ablation: a systematic review and meta-analysis of randomized controlled trials', by Hamed *et al.*, https://doi.org/10.1093/europace/euad080.

We read with interest the commentary by Leung *et al.* regarding our recently published work.[1,2] Our analysis is the only current meta-analysis that exclusively included randomized controlled trials[3–6] evaluating the role of oesophageal cooling in catheter ablation of atrial fibrillation (AF). We demonstrated that oesophageal cooling was not associated with significant differences in any oesophageal injury but significantly reduced severe oesophageal injury.[1] Our analysis was indeed limited by some heterogeneity among the included studies in the treatment protocols, including the differences in oesophageal cooling methods, as well as the timing of post-procedure endoscopy to assess for oesophageal injury. In order to address such heterogeneity, we have employed a random-effects model in our analysis. We also conducted a stepwise sensitivity analysis to evaluate the sources of heterogeneity in the primary study outcome, and consistent results were observed after including studies with a very low degree of heterogeneity. We also conducted other exploratory analyses including studies using the most common cooling method (i.e. EnsoETM device), studies using a single sensor probe to monitor oesophageal temperature, and studies performing endoscopy within the first 3 days to assess oesophageal injury, which all showed similar results to the primary analysis. Additionally, our analysis showed that oesophageal cooling was not associated with differences in procedural time, radiofrequency time, acute reconnection index or ablation index. Although retrospective studies of multicentre analysis and device registries have demonstrated a marked reduction of atrioesophageal fistula after the adoption of active oesophageal cooling using the EnsoETM device,[7,8] still there is no large randomized controlled study to demonstrate that benefit. Future directions should be guided towards a large randomized trial with long-term follow-up to better evaluate the role of oesophageal cooling in oesophageal injury prevention in patients undergoing AF catheter ablation.

Conflict of interest: None declared.

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