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# Radiofrequency needle for transseptal puncture is associated with lower incidence of thromboembolism during catheter ablation of atrial fibrillation: propensity score-matched analysis

## INTRODUCTION

- ▶ Catheter ablation of atrial fibrillation (AF) is a well-established but not risk-free procedure. Silent ischemic lesions and neuropsychological decline have been observed following these procedures.
- ▶ The impact of different approaches to accessing the heart has recently been considered as a risk factor for silent acute cerebral embolism (ACE). This study aimed to compare the incidence of ACE following AF ablation procedures performed with a radiofrequency (RF) needle versus mechanical needle for transseptal puncture.

## METHODS

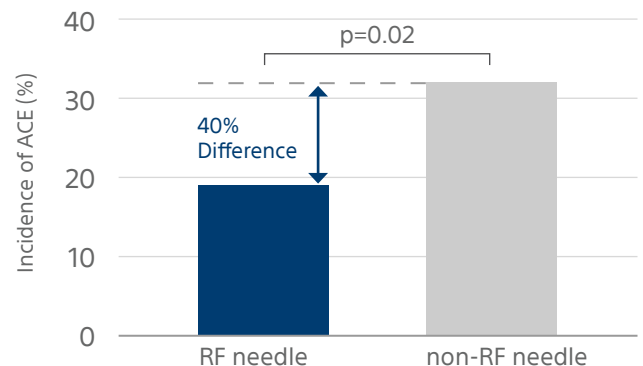
- ▶ This retrospective, propensity score-matched analysis of 232 patients who underwent a catheter ablation procedure for AF compared those with transseptal puncture performed with a RF transseptal needle\* (n=116) to those with a non-RF (mechanical) transseptal needle (n=116). Cerebral magnetic resonance images were collected following all procedures to assess for ACE.

## RESULTS

- ▶ Incidence of ACE was significantly lower in the RF needle group than in the mechanical needle group (19% vs. 32%,  $p=0.02$ ). This represents an approximately 40% lower incidence (see Figure 1).
- ▶ Total procedure time was significantly shorter in the RF needle group than in the mechanical needle group ( $167\pm 50$  min. vs.  $181\pm 52$  min.,  $p=0.01$ ). This represents a 14 min. lower mean procedure time, which suggests economic benefits through improved electrophysiology (EP) lab efficiencies may be achieved.

## DISCUSSION AND CONCLUSIONS

- ▶ It is speculated that the basis for lower incidence of ACE with RF needles may be associated with reduced skiving† and/or a more predictable transseptal process with the RF needle involving reduced time and interaction with the septum.
- ▶ It is widely accepted in the AF ablation and EP community that efforts to help lower the incidence of silent ACE are desirable, despite an incomplete understanding of the clinical consequence of these events.‡
- ▶ The results of this study suggest that physicians may consider an RF transseptal needle to help lower incidence of ACE.



**Figure 1.** Incidence of acute cerebral embolism (ACE) was lower in patients who had transseptal puncture performed with a radiofrequency (RF) needle than those using a non-RF needle.

\* Marketed in US, Canada and EU as **NRG™** Transseptal Needle (Baylis Medical Company, a fully-owned subsidiary of Boston Scientific Corporation).

† As generated by mechanical needles during the catheterization process

‡ Calkins et al. 2017 HRS/EHRA/ECAS/APHS/SOLAECE expert consensus statement on catheter and surgical ablation of atrial fibrillation. Heart Rhythm. 2017 Oct;14(10):e275-e444.

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