

Choice of Steerable Sheath Impacts Contact Force Consistency During Pulmonary Vein Isolation

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INTRODUCTION

- ▶ Contact force (CF) consistency during radiofrequency ablation (RFA) for pulmonary vein isolation (PVI) is associated with formation of effective lesions.
- ▶ In experimental studies, different steerable sheaths have shown better precision.
- ▶ This study evaluated CF consistency during RFA using two different steerable sheaths.

METHODS

- ▶ A single-center retrospective analysis of catheter stability was performed on 30 patients undergoing first time RFA procedures using two sheaths:
 - Agilis™ NxT Steerable Introducer (Abbott; 15 patients)
 - SureFlex® Steerable Guiding Sheath (Baylis Medical; 15 patients)

Imaging:

- ▶ EnSite Precision™ Mapping System (Abbott) was used for catheter guidance and contact force measurement.

Radiofrequency ablation:

- ▶ Ablations were performed using the TactiCath™ CF-sensing catheter (Abbott).
- ▶ CF was measured for each lesion at ~ 10 ms intervals.
- ▶ High-power short-duration ablation was used to achieve a local impedance drop of ~ 10 Ω.

Data analysis:

- ▶ CF consistency around each pulmonary vein was assessed based on the following parameters:
 1. Mean CF for each lesion
 2. CF variability (i.e. CF variability in each lesion)
 3. Inefficient lesions (i.e. lesions with a CF < 5g ≥ 10% of the total RF time)

RESULTS

- ▶ Baseline parameters were similar in both groups with an exception of higher BMI and percentage of females in the SureFlex group ($p < 0.05$).
- ▶ Both sheaths achieved similar operator-targeted mean CF.
- ▶ Trend of 12.8% lower overall CF variability ($p=0.08$) was seen using SureFlex sheath compared to Agilis NxT.
- ▶ In general, right PVs showed greater CF variability compared to the left PVs.
 - Trend of lower CF variability among individual PVs with the SureFlex sheath compared to Agilis NxT.
- ▶ Fewer inefficient lesions with SureFlex sheath:
 - Higher odds ratio for inefficient lesions with Agilis NxT than SureFlex sheath over entire procedure (OR = 0.605, $p=0.03$).
 - Similar trend among individual pulmonary veins and most significantly in the right inferior pulmonary vein (OR= 0.607, $p= 0.009$).

DISCUSSION & CONCLUSIONS

- ▶ This study suggests that the choice of steerable sheath can affect the quality of RFA lesions.
- ▶ Preliminary results from this study suggest:
 1. A trend of lower CF variability using the SureFlex® Steerable Guiding Sheath than the Agilis NxT specifically for the right-sided veins.
 2. Significant reduction in inefficient lesions using the SureFlex® Steerable Guiding Sheath than the Agilis NxT.