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.