Statewide Data on Surgical Ablation for Atrial Fibrillation: 
The Data Provide a Path Forward

Objective: Atrial fibrillation (AF), if left untreated, is associated with increased intermediate and long-term morbidity/mortality. Surgical treatment for AF is lacking standardization in patient selection and lesion set, despite clear support from multiple societal guidelines. The aim of this study was to analyze a statewide cardiac surgery registry to establish whether there is an association between center volume and type of index procedure with performance of surgical ablation (SA) for AF, the lesion set chosen, and ablation technology used.

Methods: Adult, first-time, nonemergent, patients with preoperative AF between 2014 and 2022 excluding stand-alone SA procedures from a statewide registry of STS data were included (N=4,320). AF treatment variability by hospital volume (ordered from smallest to largest) and surgery type was examined with ?2 analyses. Hospital-level Spearman correlations compared hospital volume to proportion of AF patients treated with SA.

Results: Overall 37% of patients with AF were ablated at the time of surgery (63% of mitral procedures, 26% of non-mitrals) and 15% had LAA management only. There was a significant temporal trend of increasing performance of SA for AF over time (Cochran-Armitage=27.8, P<0.001; Fig 1A). Hospital volume during the study period did not correlate with the proportion of AF patients treated with SA (rs=0.19, P=0.603; Fig 1B) with academic centers having the highest volume but not SA %. Of cases with SA (n=1,582), only 43% had a biatrial lesion set. Procedures that involved mitral surgery were more likely to include a biatrial lesion set (?2=392.3, P<0.001; Fig 1C) for both paroxysmal and persistent AF (Fig 1D). Similarly, ablation technology use was variable by type of concomitant operation (?2=219.0, P<0.001) such that radiofrequency energy was more likely to be used in non-mitral procedures.

Conclusions: These results indicate an increase in adoption of SA for AF over time. No association between greater hospital volume or academic status and performance of SA for AF was established. Similar to national data, the type of index procedure remains the most consistent factor in the decision to perform SA with a disconnect between AF pathophysiology and decision-making on the type of SA performed. This analysis demonstrates a gap between evidence-based guidelines and real-world practice, highlighting an opportunity to confer the benefits of concomitant SA to more patients.

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