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Long-term follow-up of the convergent hybrid AF ablation for persistent and long-standing persistent AF

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Background: The Convergent AF ablation combines a minimally invasive surgical epicardial ablation with conventional endocardial pulmonary vein isolation. 80% maintenance of sinus rhythm (SR) has been reported in small European/US studies. We report our medium-term results as the 1st participating UK centre investigating patients with clinical characteristics that often result in poor outcomes from ablation therapy.

Purpose: To assess the efficacy and safety of the Convergent hybrid AF ablation.

Methods: Between July 2012 and December 2017, 48 patients with symptomatic persistent and long-standing persistent AF underwent a Convergent AF ablation. They were selected due to adverse success features for endocardial ablation (AF duration, LA size, multiple failed catheter ablations etc). The primary efficacy endpoint of SR at follow-up was confirmed by ECG. The primary safety endpoint was defined as the incidence of any major adverse events for the procedural to 30-day post procedure time period.

Results: One procedure was abandoned due to pericardial adhesions prior to epicardial ablation. 2 patients died prior to 6 months follow-up from non-related causes. 3 patients were lost to follow-up prior to subsequent ECG rhythm assessment. Median follow-up of the remaining 42 patients was 18 months (IQR 9 to 31 months).

Patient demographics were as follows: mean age 62±11 years, median AF duration 24 months (range 2 to 150), mean LA diameter 46±8 mm, median LVEF 48% (range 20-60%), median CHA2DS2VASc of 2 (range 0 to 6). 19 patients had previously undergone endocardial persistent AF ablation.

Figure A shows the freedom from AF survival curve. 82% of patients reaching 1-year follow-up were in SR. Figure B shows the freedom from atrial arrhythmia survival curve (inclusive of all AF, atrial tachycardia and atrial flutter events). At univariate Cox regression there were no predictors of AF recurrence: age (HR 1.02; 95%CI 0.98-1.07; p=0.268), LVEF (HR 0.98; 95%CI 0.93-1.02; p=0.288), LA size (HR 1.02; 95%CI 0.97-1.08; p=0.378), BMI (HR 0.93; 95%CI 0.82-1.04; p=0.200), prior AF ablation (HR 1.45; 95%CI 0.58-3.61; p=0.487), AF duration (HR 1.01; 95%CI 1.00-1.02; p=0.285).

One stroke occurred within 24 hours of the epicardial component of the procedure. Minor complications of 2 intraoperative bleeds (both sutured laparoscopically during the procedure) and 2 wound infections occurred.

Conclusions: The Convergent Hybrid AF ablation appears to be a good treatment strategy for persistent and long-standing persistent AF. Medium term success rates were better than predicted by standard therapy despite our patient group with multiple adverse features. Ongoing work is needed to assess long-term outcomes and to further delineate the subgroup of patients in whom this procedure is best suited.
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