

Long term outcomes post ablation in patients with heart failure with reduced ejection fraction

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Background

Atrial fibrillation (AF) and heart failure with reduced ejection fraction (HFrEF) frequently co-exist, with the combination associated with worse prognosis than either condition alone.

There are concerns that AF recurrence leads to a more rapid and severe form of HF compared to initial diagnosis, but this is not well understood.

We sought to examine the clinical outcomes and hospitalisation patterns in AF patients with HFrEF following catheter ablation.

Method

- Patients were identified from three multi-centre investigator initiated trial populations (CAPLA, CAMERA, CAMERA II) and a large quaternary heart failure hospital over a ten-year period between September 2013 and December 2023
- Patients were included if they had AF with HFrEF (LVEF $\leq$ 40%) and underwent AF catheter ablation (CA)
- Patients were followed up at 3, 6 and 12 months then annually thereafter and asked to present earlier if there was arrhythmia recurrence.
- Heart failure hospitalisation was defined as symptoms and/or signs of heart failure requiring hospital admission and heart failure therapy (diuretic, mechanical fluid removal or mechanical/surgical heart failure intervention)
- Arrhythmia recurrence (>30 seconds) was determined by symptoms, routine monitoring involving a combination of twice daily single-lead ECGs, 24hour Holters, cardiac implanted devices and 28-day continuous ECG monitoring.
- Patients underwent repeat imaging (transthoracic echocardiogram or cardiac MRI) at 6 months following CA.

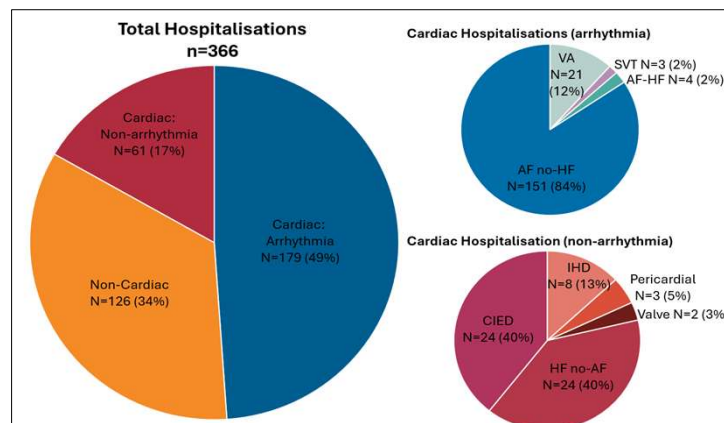
Results

231 patients (60.5 $\pm$ 11.1 years, 37 females, 203 (87.9%) with persistent AF) with a mean baseline LVEF of 30.7 $\pm$ 7.1% underwent CA for AF in the presence of non-ischemic (n=202, 87.4%) and ischemic (n=29, 12.6%) cardiomyopathy.

At 3.0 years follow-up, recurrent AF occurred in 120 (51.9%) and complete LV systolic recovery (LVEF $\geq$ 50%) in 125 (54%) patients.

There were 366 hospitalisations amongst 123 patients: 240 cardiac and 126 non-cardiac. Arrhythmia related hospitalisations occurred in 179: recurrent atrial arrhythmia without HF in 151, AF with HF in 4, supraventricular tachycardia in 3 and ventricular arrhythmia in 21. Other cardiac hospitalisations (61) included: HF without AF recurrence (24), cardiac device insertions (24) ischemic heart disease (8), pericarditis (3) and cardiac valvular surgery (2).

The absence of LVEF recovery post ablation (OR=1.32 95% CI 1.11-12.55 P=0.03), persistent AF versus paroxysmal AF recurrence (OR=1.76 95% CI 1.21-27.72 P=0.03), ischemic cardiomyopathy (OR=3.62 95% CI 1.16-11.30 P=0.02), and furosemide use (OR 4.96 95% CI 1.55-15.91 P<0.01) were associated with future HF hospitalisation.



Conclusion

AF recurrence post-ablation rarely triggers HF hospitalisation

Persistent AF recurrence, over paroxysmal, is linked to higher HF risk. Not all AF recurrences are equal in their clinical impact

HF hospitalisation $\neq$ health care utilisation