The Ceiling Effect of Heart Failure Pharmacotherapy in Acute LV Recovery Patients with AF Mediated Cardiomyopathy Prior to Rhythm Control

Kenneth K Cho1,2,3,4, Peter M Kistler1,2,3,4,6, Louise Segan1,2,3,4, Jeremy B William1,2,4,5 Rose F Crowley1,2,3,4, David Chieng1,2,3,4, Nicholas D'Elia1,2,4,5 Hariharan Sugumar1,2,3,4, Liang-Han Ling1,2,3, Aleksandr Voskoboinik1,2,3,4, Joseph B Morton3,6, Geoffrey Lee3,6, Alex J McLellan3,6, Sonia Azzopardi1, Annie Curtin1, Georgia Rendell1, Kevin Cheung2, Jessica Wang2, Kartik Sehgal2, Michael W Lim3,6, Youlin Koh3,6, Michael Wong3,6, Jonathan M Kalman3,4,6, Sandeep Prabhu1,2,3,5

Background

Atrial fibrillation mediated cardiomyopathy (AFCM) is a unique heart failure syndrome in which AF precipitates left ventricular systolic dysfunction. Concurrent guideline directed medical therapy (GDMT) for HF is the standard of care for all patients.

However clinical practice surrounding the relative timing AF ablation is variable, especially as the impact of GDMT on acute left ventricular ejection fraction (LVEF) recovery prior to definitive rhythm control is unclear.

We sought to examine the trajectory of LVEF recovery for patients with AF mediated cardiomyopathy

Method

- Patients were included if ≥2 LVEF measurements were available prior to ablation, and were late gadolinium enhancement (LGE)-ve.
- Only LGE-ve patients were included, representing a primary AFCM phenotype without additional causes for HF.
- LVEF was assessed at HF diagnosis (TBaseline), post-GDMT (TGDMT), post-ablation (TPost-Ablation), and long-term follow-up (TLongterm). Rhythm status, heart rate, and GDMT use were recorded. Predictors of LVEF recovery were analysed.

Results

Sixty-two patients were included (mean age 59.5±10.5 years, 8.1% female, baseline LVEF 31.8±8.6%). GDMT use included β-blocker 91.9%, ACE/ARB 74.2%, MRA 51.6%, ARNI 21.0%, and SGLT2 6.5%.

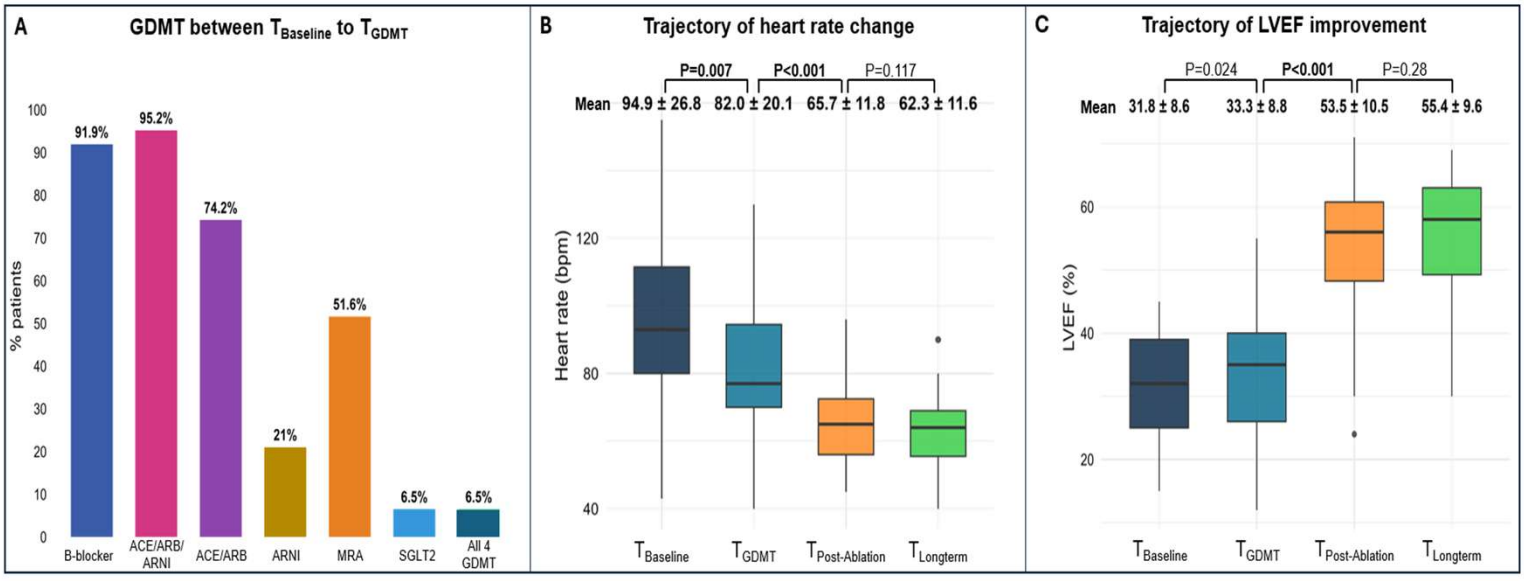
Median time intervals were 83 days from TBaseline–TGDMT, 214 days from TGDMT–TPost-Ablation, and 171 days from TPost-Ablation–TLongterm.

Heart rate declined with GDMT (P=0.007) and further after ablation (P<0.001).

LVEF did not significantly improve with GDMT (31.8±8.6 vs 33.3±8.8, P=0.24), but improved markedly post-ablation (53.5±10.5, P<0.001), with sustained recovery at follow-up (55.4±9.6). see Figure 1.

TGDMT demonstrated LVEF ≤35% in 31/62 (50.0%) of patients, with 27/31 (87.1%) recovering to >35% following ablation.

Rhythm restoration predicted recovery (P=0.013), whereas GDMT exposure did not.



Conclusion

In AFCM, LVEF recovery predominantly occurs following rhythm restoration by catheter ablation, with minimal improvement on GDMT alone. Catheter ablation may improve LVEF above the LVEF 35% threshold used to guide decisions on primary prevention defibrillator implantation

These findings suggest GDMT up-titration should not delay ablation, and highlight ablation's role in reversing LV dysfunction and potentially avoiding defibrillator implantation thresholds. Early rhythm control should be prioritised in AFCM.

1)The Baker Heart and Diabetes Research Institute, Melbourne 2)The Alfred Hospital, Melbourne 3) University of Melbourne, Melbourne 4) Cabrini Hospital, Melbourne 5) Monash University, Melbourne 6) Royal Melbourne Hospital, Melbourne

Email: kcho@baker.edu.au
Twitter: @drkennethcho