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Cardiac resynchronization therapy in patients with permanent atrial fibrillation: insights from the HMEA database

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Funding Acknowledgements: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Background/Introduction: The benefits of cardiac resynchronization therapy with defibrillator (CRT-D) in heart failure are well established. However, a gap of evidence is still present for patients with permanent atrial fibrillation (perm-AF)

Purpose: To investigate outcomes of CRT-D patients with perm-AF in terms of appropriate shock for ventricular arrhythmia and all-cause mortality in a long-term time horizon.

Methods: We used the Home Monitoring Expert Alliance (HMEA) database, a nationwide data repository of daily remote monitoring transmissions. The episodes with delivered shock were adjudicated by a board of 3 electrophysiologists.

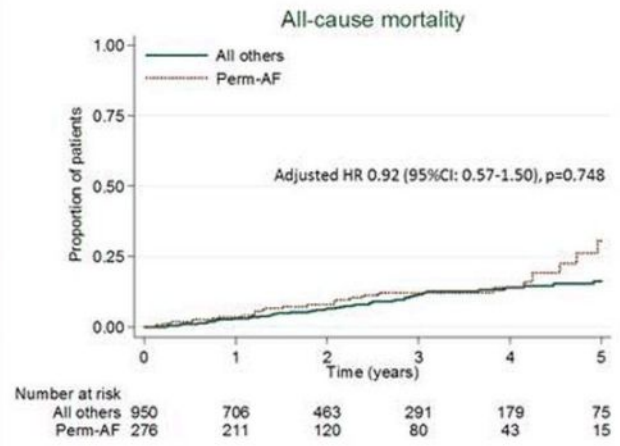
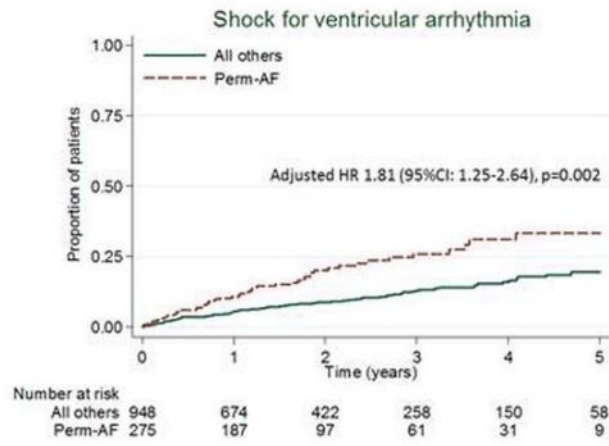
Results: Among 1226 CRT-D patients (mean age 71.2 ± 10.0 years; 75.5% males), 276 (22.5%) had perm-AF at device implantation. These patients had more frequently rate responsive function (19.7% vs 64.1%) and higher basic rate (median value 60 bpm vs 70 bpm) as compared to all other patients ($p < 0.001$). The CRT pacing percentage calculated over the first 2 months was slightly lower for perm-AF patients (median value 96.0% vs 98.8%, $p < 0.001$).

At 5-year appropriate shock incidence was 34.2% (95% confidence interval [CI], 25.1%-45.3%) for perm-AF and 19.9% (15.6%-25.1%) for all other patients. All-cause mortality was 27.7% (17.7%-41.8%) for perm-AF and 15.6% (12.2%-19.9%) for all other patients.

The age- and sex-adjusted hazard ratio between perm-AF and all other patients was 1.81 (95% CI: 1.25-2.64, $p = 0.002$) for appropriate shock and 0.92 (95% CI: 0.57-1.50, $p = 0.748$) for all-cause mortality.

Conclusion: Although a higher incidence of appropriate shock, perm-AF at the time of CRT-D implantation was not associated with increased long-term mortality,

Abstract Figure. Appropriate shock and mortality



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