The effects of quadruple heart failure therapy on ventricular tachycardia burden after device implantation

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Introduction: Implantation of cardioverter-defibrillator devices prevents sudden cardiac death in eligible patients with heart failure with reduced fraction (HFrEF). Optimal titration of guideline-directed medical therapy (GDMT) to evidence-based target doses before the implantation is mandatory to reduce unnecessary implantations. Ventricular tachycardia (VT) burden has been related to worse outcomes in patients with HFrEF.[1] The aim of this study is to evaluate the up-titration of GDMT in patients receiving implantable cardioverter defibrillator (ICD) and cardiac resynchronization therapy (CRT-D) devices with HFrEF, and to evaluate the eventual effects of maximally titrated drug classes of GDMT for HFrEF on the incidence of VT and appropriate device therapy.

Patients and Methods: This single-center retrospective observational study included all patients with HFrEF hospitalized for ICD or CRT-D implantation from January 2021 to November 2023 with at least one device check-up session after the initial implantation. Data was collected through patients' medical history and phone calls. The Fisher exact test was used to test the statistical significance of differences between groups for nominal variables.

Results: Data on 132 patients with HFrEF and ICD or CRT-D implanted were collected. Median follow-up time from device implantation to the last device session was 201 days. VT was reported in 43 (32,6%) patients. Appropriate device therapy was administered in 9.3% vs 15.4% patients with CRT-D vs ICD. In patients with CRT-D vs ICD, evidence-based target doses were reached for 31.5% vs 19.2%; 44.4% vs 33.3%; 79.6% vs 69.2%; and 98.1% vs 83.3% receiving beta-blockers, angiotensin receptor–neprilysin inhibitors (ARNI), mineralocorticoid receptor antagonists (MRA), and sodium-glucose cotransporter-2 inhibitors (SGLT2i), respectively. The occurrence of VT and appropriate device therapy did not differ significantly between patients receiving beta-blockers, ARNI, and/or MRA in their maximal target doses and patients with incompletely titrated doses. Incidence of VT was significantly lower in recipients of CRT-D compared to ICD (18.5% vs 42.3%, p<0.005).

Conclusions: Our study presented that maximal up-titration of either of the classes of GDMT individually or all of them did not result in a significant decrease in VT or appropriate device therapy incidence. Cardiac resynchronization therapy, in addition to providing room for better GDMT up-titration, might have an additional benefit in VT burden reduction.

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LITERATURE

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