Background: The benefit of a primary prevention implantable cardioverter defibrillator (ICD) in heart failure (HF) patients treated with contemporary medical therapy that includes a sodium-glucose cotransporter-2 inhibitor (SGLT2i) is unknown.

Objective: To evaluate the survival benefit associated with an ICD among HF patients treated with empagliflozin in the EMPEROR-Reduced trial.

Methods: Propensity score matching was used to compare patients on empagliflozin who had an ICD at enrollment to subjects on empagliflozin without an ICD. Propensity matching was based on sex, age, left ventricular ejection fraction (LVEF), body mass index (BMI), New York Heart Association (NYHA) class, and etiology of HF (ischemic/non-ischemic). Cox regression analysis was used to evaluate the risk of all-cause mortality and sudden death.

Results: Out of 578 patients in the empagliflozin group of the EMPEROR-Reduced trial who had an ICD at enrollment, 535 were matched to 535 patients without an ICD. The mean age for the selected group was 68 +/- 10.2 years, 81% were male, the mean LVEF was 27 +/- 5.7% and 73% and 27% of patients had NYHA class II and III symptoms, respectively. The mortality rate for patients with an ICD was 8.5 vs 12.7 per 100 patient years in those without an ICD (Figure A). Similarly, the sudden death rate was 1.6 vs 3.3 per 100 patient years in patients with and without an ICD, respectively (Figure B). Cox analysis demonstrated a 26% lower risk for mortality for patients with an ICD when compared to those without an ICD (HR 0.74, 95% CI 0.51-1.07, p = 0.114); and a corresponding 41% lower risk of sudden death (HR 0.59, 95% CI 0.31-1.15, p = 0.122), although findings did not reach statistical significance.

Conclusion: Our findings suggest that among HF patients treated with contemporary medical therapy that includes a SGLT2i, an ICD appears to provide incremental benefit in reducing the risk of all-cause mortality and sudden death.

Abstracts

SACUBITRIL-VALSARTAN AND BURDEN OF VENTRICULAR ARRHYTHMIA: A META-ANALYSIS
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Background: PARADIGM-HF showed a reduction in sudden cardiac death with Sacubitril-Valsartan (SV) use compared to enalapril in patients with heart failure with reduced ejection fraction (HFrEF). However, it is not clear if there is significant reduction in ventricular arrhythmias due to SV.

Objective: To identify if SV is associated with a reduction in ventricular arrhythmias compared to ACE-i/ARB.

Methods: We conducted systematic searches on Pubmed, EMBASE, Cochrane and Web of Science - for studies published from inception to November 2021. The studies were independently assessed by three researchers using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. We included randomized controlled trials (RCTs), prospective and retrospective cohort studies, controlled before-and-after studies. Treatment group included patients with HFrEF (EF <40%) treated with SV and goal directed medical therapy (GDMT) for heart failure. Control group included patients with HFrEF (EF <40%) treated with GDMT for heart failure except SV.

Results: We screened 480 studies. Eight studies enrolling 9,724 patients were included. Among them, the treatment group had 4849 patients and the control group had 4875 patients. We found that patients who were on SV had lower incidence (2.47%) of sustained ventricular tachycardia and ventricular fibrillation as compared to those who were not on SV (3.57%) with a pooled risk ratio of 0.65 [0.44-0.97, p = 0.04]. Five studies had information on ICD shocks with 587 patients in each arm. Fewer patients in the SV group (5.96%) received ICD shocks compared to those not on SV (12.2%) with a pooled risk difference of -0.06 [-0.11, -0.01, p = 0.02].

Conclusion: Sacubitril-Valsartan significantly decreased the incidence of sustained ventricular arrhythmias and ICD shocks in patients with heart failure.

Fig 2: Data of the comparative analysis of patients receiving ICD shocks among Sacubitril-Valsartan group and Control group.