

# Effect of empagliflozin on RV function measured by speckle tracking in patients with HFpEF

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## Keywords:

Empagaliflozin - RV - speckle tracking - HFpEF

## ABSTRACT

Sodium-glucose co-transporter 2 (SGLT2) inhibitors reduces cardiovascular events in type 2 diabetes (T2DM) and is associated with a reduction in left ventricular (LV) mass index. However, the impact on right ventricular (RV) remodeling is unknown. Accordingly, the objective of this study was to assess the impact of SGLT2 inhibition on RV parameters and function in patients with heart failure with preserved ejection fraction. Although there have been many advances in noninvasive RV imaging during the past decade, echocardiography remains the most accessible and easiest method to assess RV volumes and function during follow-up. This study aimed to examine the effect of empagliflozin on RV function assessed by FAC, TAPSE, RVOT SE, TDI and RV speckle tracking in patients with HFpEF. This study was carried-out on 40 patients suffered from HFpEF and with definite diagnosis of HFpEF; the patients were collected from Al-Azhar –University Hospitals (Cairo, Egypt). All patients included in our study subjected to full data Echocardiography and both conventional parameters (RV/ LV diameter ratio, RV FAC, TAPSE, TV TDI s' velocity) and RV speckle tracking parameters (RV GLS) before treatment and after 6 months of medical treatment that include empagliflozin. All echocardiographic parameter were assessed in blinded fashion. At baseline, the mean of the following percent of LL edema (90%), systolic blood pressure was (159 mmHg), LVH (87% of patients) and TAPSE (17.02), RVGS (-17.17), RV free wall strain (-21.17), FAC (33.85%), RV/LV ration <1 (47.5%), RV/LV >1 (52.5%), RVOT SE (4.55 mm), TDI e' lateral tricuspid annulus (7.22 cm/s), TDE s' TA systolic velocity (9 cm/s). While after using the empagliflozin the mean was percent of LL edema (7.5%), systolic blood pressure was (141.37 mmHg), LVH (70% of patients) and TAPSE (20.97), RVGS (-20.7), RV free wall strain (-24.72), FAC (36.90%), RV/LV ration <1 (100%), RV/LV >1 (NOT RECORDED), RVOT SE (5.52 mm), TDI e' lateral tricuspid annulus (13.22 cm/s), TDE s' TA systolic velocity (13 cm/s) respectively. In both groups, there was significant correlation between effects of empagliflozin using on RV improvement changes from baseline to 6 months. This study concluded that with treatment empagliflozin for patients with HFpEF enhance the RV systolic function measured by speckle tracking RV global strain and RV free wall strain, RV FAC, RVOT SE and TDI.

