Evaluation of Right Ventricular Function in Heart Failure Patients with Preserved Ejection Fraction using 2D Speckle Tracking Echocardiography

**Mahmoud Shawky Abdelmoneum 1, Mohammed Abdelhamed Elsayed Ali 1, Elsayed Abdelkhalek Eldarky 1 , Ali Ibrahim Attia,Wael Ahmed Elsayed Mekled 2 and Mohammed Mahrous Ali 1**

1 Cardiology Department, Benha University Hospital, Benha, Egypt.

2 Cardiology Department, Benha teaching Hospital, Benha, Egypt.

**Abstract**

**Background:** Heart failure with preserved ejection fraction (HFpEF) is a clinical disorder where patients have manifestations and indications of heart failure (HF) yet typical or close ordinary left ventricular ejection fraction (LVEF).**(1)**Approximately 50% of patients with this clinical syndrome have HFpEF because of the additional risk factors of aging, hypertension, obesity, and coronary artery disease **(2,3)**.The occurrence of myocardial disease can precede structural myocardial changes shown by traditional imaging techniques. Accurate assessment of myocardial function is therefore particularly important in patients with potential to develop serious cardiac disease. Myocardial strain by two dimensional speckle tracking echocardiography(2D-STE) has demonstrated to be a sensitive tool for assessing ventricular function in early myocardial disease **(4).**

.

**Subjects and methods:** The study was performed in Benha university and benha teaching hospitals. It was conducted on 100 subjects, divided into two groups: group I included 50 Patients clinically diagnosed as HFpEF. Group II included 50 Healthy subjects, age and sex matched with the patients as control group. HFpEF is diagnosed according to the current proposals and left ventricular diastolic dysfunction (LVDD) was recognized by the most recent American Society of Echocardiography (ASE) criteria. The HFpEF gathering had a Left ventricular ejection fraction (LVEF) >50% while the HFrEF gathering had a LVEF <55%) **(5)** .

**Result:** right ventricular systolic myocardial velocity (ytrg) was significantly higher in group I (-0.64 ±2 s-1) than group II (-0.67 ±2 s-1) (P < 0.001). right ventricular global longitudinal stain (RVGLS) was significantly lower in group I (-19%) than group II (-21%) (65). Pulmonary artery systolic pressure (PASP) was significantly higher in group I (33 ±4 mmHg) than group II (30 ±3 mmHg) (P < 0.001). Right ventricular ejection fraction (RVEF) was non significantly lower in group I (44%) than group II (47%) (32277).

No significant differences were reported between both groups regarding right ventricular diameter (RVD)(mid,basal,longitudinal)(P=0.391,0.064,0.070,respectively) Tricuspid annular plane systolic excursion (TAPSE) (P = 0.473), and right ventricular fractional area change (RVFAC) (P = 0.12)