Summary

Heart failure with a normal left ventricular ejection fraction is usually called "diastolic heart failure" if there are no other obvious causes. Diastolic heart failure may be more common than systolic heart failure in patients presenting with heart failure symptoms.

Early detection of left ventricular dysfunction in patients with AF is important in predicting which patients are at high risk of developing heart failure and in providing therapeutic intervention to reduce the future incidence of heart failure and its accompanied medical and social costs.

The precise assessment of diastolic dysfunction in AF is extremely difficult because irregular RR intervals produce constantly changing loading conditions and the applicability of standard Doppler echocardiographic criteria for the diastolic dysfunction is hampered by the lack of late filling phase (A wave) from atrial contraction .

Averaging some diastolic indices using Doppler echocardiography in multiple consecutive beats is tedious and cumbersome and its routine application is often difficult in busy clinical scenarios.

The prominent mid-diastolic filling wave which has been described as mitral L wave is thought to provide a sensitive index of diastolic dysfunction in patients with chronic persistent non valvular AF.

This study was carried out on 60 patients presented to **cardiology department** in **Benha University Hospital** and they were divided into two groups:

Group I: 30 patients with sinus rhythm.

Group II: 30 patients with chronic AF rhythm.

The exclusion criteria were paroxysmal AF, patients with valvular heart diseases and patients with rhythm disturbances other than AF.

All the studied population were subjected for full history taking with stress on age, gender, history of previous myocardial infarction, coronary artery revascularization, diabetes mellitus, hypertension, complete clinical examination, resting (12) leads surface ECG , plain x-ray chest searching for signs of heart failure and trans-thoracic echocardiography was performed with the patient resting in the left lateral position, M-Mode, two-dimensional and Doppler and tissue Doppler ultrasound examinations were carried out.

Mitral L wave which is verified as a distinct forward flow velocity after the E wave with a peak velocity >20 cm/s was quantified using conventional transmitral pulsed wave Doppler in apical 4-chamber view.

Myocardial velocities were recorded by pulsed wave tissue Doppler. The meridional mitral annular velocities were recorded from the apical window with the Doppler sample volume placed in the septal aspect of the mitral annulus in the four chamber view, all images were acquired during end expiration, and attention was paid to obtaining the appropriate velocity range settings (high enough pulse repetition frequency) to avoid aliasing.

This study had found that patients with an L wave were older, having higher incident of HTN, diabetics and CAD (Tab.7).

This study had found that the prevalence of mitral L wave was more in AF patients than patients with sinus rhythm (Tab.6).

Also, This study had found that the prevalence of heart failure at the time of echocardiographic examination tended to be significantly higher in patients with an L wave compared to those without it(Tab.7).

The current study had found that Em velocity measured by TDI were reduced in patients with an L wave versus thus, E/Em was higher in patients with an L wave compared to others without it.

This study had concluded that mitral L wave is relatively common in patients with chronic persistent non valvular AF and reflects elevated LV filling pressures. Thus the detection of the mitral L wave is a simple and useful finding in diagnosing advanced diastolic dysfunction in patients with AF.