The aim of this study is to compare the left ventricular systolic and diastolic function with speckle tracking imaging (STI) in patients with chronic congestive heart failure due to primary dilated cardiomyopathy (DCM) and the controls, and the left ventricular function changes in these patients before and after intaking phosphodiesterase inhibitors-olprinone.

Methods
30 patients with DCM within 24 h before and after intaking phosphodiesterase inhibitors-olprinone for 5 days and 30 healthy persons were examined using conventional echocardiography. The left atrial anterior-posterior dimension and left ventricular internal diastolic dimension were measured on M-mode echocardiography on parasternal left ventricular long axis view, the left atrial superior-inferior dimension and medial-lateral dimension were measured on two-dimensional echocardiography on apical four-chamber view in systole. Left ventricular ejection fraction (LVEF) was calculated by bi-plane Simpson’s method. The peak velocity during early diastole (Vₑ) and late diastole (Vₐ) of mitral valve were measured through transmitral flow by pulse-waved Doppler, and the ratio Vₑ/Vₐ was calculated. The peak mitral annulus velocity during early diastole (Vₑ₀) and late diastole (Vₐ₀) of anterior mitral valve were measured by tissue Doppler echocardiography. The ratio Vₑ/Vₑ₀ was calculated. Two-dimensional echocardiographic images were recorded from the left ventricular short-axis views at the basal level and apical level of the left ventricle. The left ventricular global peak rotation and rotation rate were measured using QLAB 6.0 workstation. Statistical analysis was used to find the difference between the dilated cardiomyopathy patients and the controls, and patients before and after medication.

Results
The atrial and ventricular dimensions in patients were bigger than that of the controls; moreover, atrial dimension was decreased significantly after medication than that of the ventricular dimension.

Conclusions
Left ventricular systolic torsion, diastolic function in patients with dilated cardiomyopathy were significantly impaired. Short time medication can improve the systolic function. The structural changes in left ventricle was not significant, however, atrial dimension could decrease significantly.