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Assessment of resting left ventricular functions in patients with non-alcoholic liver Cirrhosis complicated by liver cell failure

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Background: To study the left ventricular systolic and diastolic functions in patients with non-alcoholic liver cirrhosis complicated by liver cell failure (LCF) using Echo/Doppler measures prior to planned interventions and to correlate recorded abnormalities with the severity of LCF.

Methods: Thirty-five patients with non-alcoholic liver cirrhosis complicated by LCF were referred from the internal medicine for cardiac assessment. Patients were classified according to Child-Pugh into 3 classes: A, B, and C. Sixteen healthy subjects were selected as a control group. Left ventricular ejection fraction was assessed by volumetric, M-mode and eye ball method. Diastolic function was assessed by E/e', E/A ratio and mitral E wave deceleration time.

Results: The mean age of cirrhotic patients was 55 years, 62% of them were males. The most prevalent signs among these patients were ascites (97%), wasting (85%) and jaundice (71%). According to Child classification; 6 cases were Child class A (17%), 14 cases were Child class B (40%) and 15 were Child class C (43%). Both the left ventricular end diastolic and systolic dimensions were within normal in both groups (mean = 5.1±0.1versus 5.5± 0.1, P =0.9 and 3.1± 0.1 versus 3.2± 0.1, P =0.6 respectively). Mean left ventricular ejection fraction was also normal in both groups (mean= 66 1versus 65.8 1.4. P= 0.6). Compared to the control group, the mitral E/A ratio in cirrhotic patients was lower (mean= 0.8 versus 1.4±0.1, P <0.001) and had statistically significant correlation with the severity of LCF, being least in Child C class patients (P =0.0493). Mitral E wave deceleration time was longer among cirrhotic patients (mean= 200 ±5 versus 178 ± 4, P =0.010 in controls) but not different among Child classes. The E/e' ratio was below 8 in both groups (mean 6.6 ± 0.4 in cirrhotic compared to 5.9 ± 0.2 in controls, P =0.9).

Conclusion: Overt systolic LV function as assessed echocardiographically in patients with non-alcoholic liver cirrhosis complicated by LCF is not affected at rest; mild form of diastolic dysfunction (impaired relaxation with normal filling pressures) was detected in patients with advanced stage of liver cell failure.

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