

Diastolic Heart dysfunction in peritoneal and hemodialysis patients.

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INTRODUCTION AND AIMS: Left ventricular hypertrophy (LVH) is a major, wellknown cardiovascular complication in end stage renal disease (ESRD) patients. However, the prevalence of left ventricular filling pressure has remained uncertain in this population. Studies have shown that E/E' ratio (the ratio of early mitral flow velocity (E) to early mitral annulus velocity (E')) is an accurate estimate of LV filling pressure and a reliable marker of LV diastolic dysfunction in ESRD patients. We evaluated diastolic dysfunction (DD) using (E/E') ratio, by tissue Doppler imaging in peritoneal dialysis (PD) and hemodialysis (HD) patients.

METHODS: This was a cross- section study performed in stable 33 PD patients and 59 HD patient who had more than 3 months in renal replacement therapy (RRT). Exclusion criteria included severe valve stenosis or regurgitation. The echocardiographic techniques and calculation of different cardiac dimensions and volumes were performed according to the guidelines of the American Society of Echocardiography. Abnormal diastolic function was categorized into stage 1 (impaired relaxation), stage 2 (Pseudo normal) and stage 3 (which identifies an abnormally elevated LV filling pressure). Myocardial velocities were recorded using the tissue Doppler Technique

RESULTS: The echocardiographic evaluation was done in 33 PD patients (23.5% diabetics, 58.8 % males; mean age 55.±12.36 years; mean time in therapy 33±19months) and in 59 HD patients (15.2 % diabetics, 71.2% males; mean age 50.8 ±11.9 years; mean time in therapy 60.3 ±46.12 months).

Significantly lower phosphate [4.3±0.9 mg/dl vs 5.32±1.34 mg (p<0.01)]; a higher RRF [2.07 ± 1.9 ml/min vs 0.5 ± 0.9 ml/min (p<0.01)]; older age (p=0.033) and lower vintage in dialysis (p<0.001) were observed in PD compared to HD patients. Of the all patients, 64.3% (56.5% in HD and 79.2% in PD) had E/E' ratio < 8, (stage 1DD); 22.9 % (23.9% in HD and 20.8% in PD) had E/E' ratio 9-12 (stage 2 DD) and only 12.9 % of patients (19.6% in HD and no pts in PD) had E/E' ratios > 15 (stage 3DD). It was found significant difference E/E' ratio in HD and PD ($\chi^2=6.01$, df=2, p=0.049). Stage 1 DD was found more frequent in PD than in HD, and Stage 3DD is found only in HD patients. It was not found any significant relationship of E/E' ratio >15 with Age, Time in dialysis, RRF, Hb level, P, PTH, CRP, Pulse pressure and diabetes through binary logistic regression.

CONCLUSIONS: This study showed that Diastolic dysfunction stage 1 is frequent in ESRD patients in PD and HD treatment. The prevalence of abnormally elevated LV filling pressure is relatively low, and we found this only in HD group. Probably one explanation for this finding would be that HD patients are more susceptible to shifts in fluid volume.

