# DOPPLER TISSUE IMAGING AND PULMONARY ARTERIAL PRESSURE IN PERITONEAL AND HEMODIALYSIS PATIENTS.

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- **Introduction:** Pulmonary hypertension (PH), a disease which carries substantial morbidity and mortality, has been reported to occur in 25%–45% of dialysis patients. To compare the pulmonary artery hypertension (PAH) in hemodialysis (HD) and peritoneal dialysis (PD) patients and its relation with diastolic dysfunction and survival of patients in dialysis therapy.
- **Methods:** This is an observational study evaluated 80 stable HD patients (females 37.5%, mean age 50.36±12.34years) and 45 PD patients (females 40%, mean age 55.07±13 years) on renal replacement therapy (RRT) for more than 3 months. Serum biochemical parameters were collected one month before echocardiography for each patient. The echocardiographic techniques and calculation of different cardiac dimensions and volumes were performed according to the guidelines of Europian and American Society of Echocardiography. Pulmonary artery hypertension was defined as a systolic pulmonary artery pressure (SPAP) ≥35mmHg. Tissue Doppler imaging (TDI) of the left and right ventricle was performed in all patients. Diastolic dysfunction (DD) defined as the increased ratio of early mitral flow velocity (E) to early mitral annulus velocity (E') [E/E'>14]. Calculation of right ventricular myocardial performance index (MPI) by tissue Doppler imaging is defined as the ratio of isovolumic time divided by (IVRT + IVCT)/ET.
- **Results:** According to the echocardiographic findings, PAH was found in 26 (32.5%) patients of HD group and in 9 (20%) patients of PD group (p=0.035). It was found a moderated correlation between sPAP and E/E': Spearman correlation coefficient= 0.295, p=0.001. This relationship was found both in HD (Spearman correlation coefficient= 0.315, p=0.005) and in PD group (Spearman correlation coefficient= 0.318, p=0.033). We also found a weak correlation of pulmonary artery systolic pressure with MPI-RV and TAPSE (r =-0.272, P = 0.044); (r =-0.234, P =0.039) respectively. This relationship with MPI-RV and TAPSE was observed only in HD patients (r=-0.341, p=0.02), (r =-0.276, p = 0.046) respectively; but not in PD group. Logistic regression analysis predicting cardiovascular mortality found PH an independent risk factor on CV mortality.
- **Conclusions:** We found PH an independent risk factor on CV mortality. In the present study, the prevalence of pulmonary hypertension was higher in the HD group, which is not surprising, as these patients had higher AV fistula flow. Arteriovenous fistula induced volume overload lead to increased sPAP and play a crucial role in triggering RVD in maintenance hemodialysis patients. Finally diastolic dysfunction may contribute to the development of PH in dialysis patients by causing an elevated left atrial pressure


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