PREVALENCE AND MECHANISM OF PULMONARY HYPERTENSION IN CHRONIC HEMODIALYSIS BY INVASIVE MEASUREMENTS

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Sunday, March 25, 2012, 11:00 a.m.-Noon

Session Title: Pulmonary Hypertension: Epidemiology and Risk Factors
Abstract Category: 30. Pulmonary Hypertension
Presentation Number: 1132-614

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Background: Among patients undergoing chronic hemodialysis, pulmonary hypertension (PH) (defined as pulmonary artery systolic pressure [PASP] ≥35mmHg) has been observed in up to 48% of patients using echo Doppler technique. Recently, PH has been defined by consensus as a mean PA pressure (MPA) ≥25mmHg. Using this definition of PH, we analyzed data from cardiac catheterization to determine the prevalence and mechanisms of PH among patients undergoing chronic hemodialysis.

Methods: Hemodynamic data from 111 stable patients undergoing cardiac catheterization were retrospectively analyzed. All patients included did not have significant valvular disease, a history of known causes of PH, and were undergoing non-emergent catheterization.

Results: Mean age was 60±12 and 41% were women. One hundred six (96%) had history of systemic hypertension. Fifty one patients (46%) had PH (MPA ≥25mmHg). Among patients with PH, MPA was 33.5±6.5 compared to 16.3±5 in patients without PH (p<0.001). Compared to patients without PH, patients with PH had higher wedge pressure (17±6 vs 7±4mmHg; p<0.001) and higher transpulmonary gradient (15.9±5.1 vs 9.2±3.6; p<0.001). Cardiac output was not different in patients with compared to without PH (6.5±1.7 vs 6.8±2.0 L/min; p=0.41). Pulmonary vascular resistance (PVR) was significantly higher in PH patients (2.7±1.3 vs 1.5±0.8 Wood Units; p<0.001). Systemic vascular resistance was also significantly higher in PH patients (17.1±5.1 vs 15.2±5.1 Wood Units; p=0.047).

Conclusions: PH is frequently encountered in patients undergoing hemodialysis. PH in this population appears to be due a combination of both pre and post capillary mechanisms and is not associated with increased cardiac output.