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Left Atrial and Pulmonary Capillary Wedge Pressure Relationship is Valuable for Patients with Pulmonary Hypertension

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Aim: The present study aims to determine whether pulmonary capillary wedge pressure can be used to replace left atrium pressure in case the latter cannot be measured for patients with pulmonary hypertension.
Materials and Methods: The present study reviews a total of 1040 patients with pulmonary hypertension caused by left to right cardiac shunt that were recorded throughout the Turkish Congenital Heart Disease Pulmonary Hypertension Study (THALES) held between 2009 and 2011. Approximately 996 patients of the study group underwent cardiac catheterization. The mean left atrial pressure and pulmonary capillary wedge pressure values of these patients were 10.09 ± 0.209 mmHg (range: 4-26) and 10.97 ± 0.107 mmHg (range: 1-26) respectively.
Results: The correlation between mean left atrial pressure and mean pulmonary capillary wedge pressure was found to be statistically significant for both pediatric and adult patient groups ($r = 0.728$ $p < 0.001$ and $r = 0.534$ $p < 0.001$ respectively). There is a statistically significant correlation between mean pulmonary capillary wedge pressure and each of three parameters including mean pulmonary artery pressure, systolic pulmonary artery pressure and diastolic pulmonary artery pressure ($p<0.001$ for each)
Conclusion: There are a number of similar studies in literature. However, these studies have been done on heterogeneous patient groups that consist of adults with congenital cardiac defects and coronary cardiac diseases leading to a left to right shunt. Being conducted over a relatively larger study cohort, the present study shows that left atrium pressure significantly correlates with pulmonary capillary wedge pressure in patients with pulmonary hypertension caused by left to right cardiac shunt. Another result is that pulmonary capillary wedge pressure can be safely utilized to compute transpulmonary gradient whenever left atrium pressure cannot be measured.