**LEFT ATRIAL SYSTOLIC STRAIN RATE ESTIMATES PULMONARY CAPILLARY PRESSURE: A SIMULTANEOUS ECHOCARDIOGRAPHY AND CARDIAC CATHETERIZATION STUDY**

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Background: Raised left atrial (LA) pressure is a common pathway for many pathologies and is known for its complications. It also has a direct effect on LA cavity size and overall systolic function. We hypothesized that raised LA pressure as shown by pulmonary capillary wedge pressure (PCWP) correlates with severity of LA intrinsic systolic function.

Methods: We studied 46 patients, mean age 61 ±13 years, 17 males, of various etiologies with exertional breathlessness who underwent right heart catheterization and simultaneous transthoracic Doppler echocardiography using spectral, tissue Doppler and speckle tracking echocardiography techniques for assessing LA structure and function.

Results: PCWP correlated with direct measurements of LA structure and function: LA volume (r= 0.43, p<0.01), LA global systolic strain rate (r=0.79, p<0.001) and to a lesser extent with LA systolic filling fraction (r=0.52, p<0.001). PCWP also correlated with indirect measures of LA pressure: LV E/A (r=0.66, p<0.001), E wave deceleration time (r=0.54, p<0.001), lateral E/e’ (r=0.49, p<0.001) and LV isovolumic relaxation time (r=0.36, p<0.01). LA strain rate was 78% sensitive and 84% specific in identifying patients with PCWP > 15 mm Hg, having accurately predicted PCWP in 63 % of the cases.

Conclusion: PCWP correlates with LA intrinsic systolic function and to a much lesser degree with indirect Doppler measures of raised LV filling pressures. These findings should have significant clinical implications in identifying breathless patients with raised LA pressure.