ECHOCARDIOGRAPHIC PULMONARY/LEFT ATRIAL RATIO: A NOVEL AND ROBUST NON-INVASIVE DISCRIMINATOR OF PRE-CAPILLARY VERSUS POST-CAPILLARY PULMONARY HYPERTENSION

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Background: Right heart catheterisation (RHC) is the gold-standard for differentiating pre-capillary (high trans-pulmonary gradient (TPG), normal wedge pressure) pulmonary hypertension (PHT) from post-capillary (elevated wedge pressure, with or without elevated TPG). This new non-invasive parameter ePLAR is calculated from echo tricuspid regurgitation continuous wave Doppler maximum velocity divided by the transmitral E wave : mitral annular DTI E’ wave (TRVmax/E:E’).

Methods: Echocardiographically detected PHT (RVSP>40mmHg) pts were classified by RHC as, pre-capillary (TPG >12mmHg, wedge<15mmHg), or post-capillary (wedge>15mmHg). ePLAR values of these groups were compared.

Results: 63 patients (32 male, 73.3+/-10.3yrs) were classified as pre-capillary (n= 21, PA systolic 63+/-14mmHg, PA mean 37+/-6.9mmHg, wedge 11.9+/-4mmHg, TPG 25.6+/-8.9mmHg), post-capillary (n=31, PA systolic 59+/-13mmHg, PA mean 36+/-7.2mmHg, wedge 22+/-5mmHg, TPG 14.6+/-5.3mmHg) or not PHT (n=10). The ePLAR was higher in the pre-capillary group (0.34 +/-0.14 vs 0.17+/-0.05, p<0.00001). A cut-off of ePLAR>0.22 had an extremely high discriminatory power by ROC analysis (AUC = 0.896).

Conclusion: ePLAR is a simple echo parameter which can accurately differentiate the small subset of patients with pre-capillary pulmonary hypertension from the more common post-capillary etiology. This offers the potential to streamline screening of patients for specific pulmonary vasodilator therapy.