Echocardiogram Assessment of Pulmonary Hypertension; How Accurate Is It?

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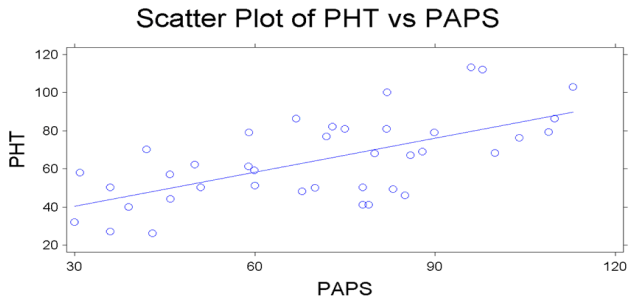
Background: Echocardiogram is the most common tool for assessment of pulmonary hypertension (PHT). The availability of this non-invasive test as well as its increasing reliability raised a valid question regarding the necessity of the "gold standard" invasive method for PHT measurements- the right heart catheterization. Accordingly, we assessed the PHT measurements correlation between the echocardiogram {"PHT"} and the right heart catheterization {"PAPS"}.

Patients and Methods: The echocardiogram and right heart catheterization data of 42 consecutive patients {mean aged 62 ± 11 year old, 21(52%) females}, were analyzed. Seventeen (40%) patients had systolic heart failure. An echocardiogram systolic pulmonary pressure (based on tricuspid regurgitation measurements and the Bernoulli equation) was compared to the direct measurement via the right heart catheterization.

Results: In a statistical analysis we found the correlation of the systolic pressure between the two tests to be modest ($r=0.63$, $p<0.0001$), figure-1.



Demographic parameters of age and sex had no significant impact on the echocardiogram prediction of measurements; however, both left ventricular ejection fraction and the magnitude of the tricuspid regurgitation decreased the echocardiogram reliability of the PHT measurements.

Conclusion: There is a modest correlation between the echocardiogram pulmonary measurements and the gold standard hemodynamic measurements. Accordingly, in patients where the accuracy of the measurements is important (such as in heart transplant evaluation, PHT treatment options etc), the echocardiogram may not serve as the final test and direct hemodynamic measurements are still irreplaceable.