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CAT block 6

Citation: Diagnostic Accuracy in Right Ventricular Dysfunction Markers in Normotensive Emergency Department Patients with Acute Pulmonary Embolism. [Annals of Emergency Medicine](#). 2016 Sep;68(3):277-91. doi: 10.1016/j.annemergmed.2016.01.027. Epub 2016 Mar 11.

Clinical question: What is the diagnostic accuracy of goal directed echocardiography, cardiac biomarkers, and CT in early identification of severe right ventricular dysfunction in normotensive ED patients with PE, compared with comprehensive echocardiography?

Methods: prospective observational study, conducted a single center at Carolinas medical center enrolled 133 (122 were included) consecutive patients diagnosed with PE. Inclusion criteria were > 18 years with diagnosis of PE via CT or VQ scan who received comprehensive cardiography within 24 hours. Patients were excluded who met criteria for massive PE. Goal directed echo was performed by 5 EM physicians, interpretation of the scans were performed by 2nd year EM residents blinded to diagnosis. Comprehensive Echos were analyzed by blinded cardiologists. Istat cardiac bio markers (0.07) and BNP (90 mg/dl) were collected and cutoffs were as noted. Goal directed echo criteria included ventricular apex blunting, severe systolic dysfunction, ventricular septum contour. CT examination examined central location of clots and RV/LV ratios.

Results: Goal directed echo had a sensitivity/specificity of 100 and 99 % for RV dysfunction with a positive likelihood ratio of 90. 3 images were poor quality so with intention to treat type analysis 90 and 99% and a positive likelihood ratio of 81. BNP had SN/SP of 88 and 68 respectively, troponin was 62 and 93, cardiac biomarkers were 96 and 66, central location of clot on CT was 88 and 60, and CT RV/LV ratio was 91 and 79.

Analysis: The point of this study was to validate the accuracy of EM physician goal directed echocardiography in normotensive patients, which it appears to have done. Even with the 3 poor quality images interpreted as false positives the results were quite well validated. This study specifically looked at the three criteria of goal directed echo. Part two of the study will examine the mortality outcomes of patients with goal directed echo positive sub-massive PE to aid in dispo.
