LUNG ULTRASOUND FOR THE EVALUATION OF PULMONARY CONGESTION IN HEART FAILURE OUTPATIENTS: A COMPARISON WITH CLINICAL ASSESSMENT, NATRIURETIC PEPTIDES AND ECHOCARDIOGRAPHY

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 10:00 a.m.-10:45 a.m.

Session Title: Imaging: LV Diastolic Function
Abstract Category: 18. Imaging: Echo
Presentation Number: 1143-359

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Background: Evaluation of pulmonary congestion (PC) is a diagnostic challenge even by highly skilled clinicians. Recently, lung ultrasound (LUS) has been proposed for a reliable, easy evaluation of PC, by assessment of B-lines. Our aim was to test LUS performance as part of the evaluation of heart failure (HF) patient in an outpatient clinic.

Methods: 97 patients with advanced systolic HF were enrolled. Analyses were performed to compare LUS to NT-proBNP, echocardiography, combined NT-proBNP + echocardiography method (COMB) and to a previously validated clinical congestion score (CCS).

Results: Mean age was 52±9yrs (61% male); 48% had dilated cardiomyopathy HF (mean ejection fraction 28±4%). PC was present in 58% patients when estimated by CCS, 68% by LUS, 53% by NT-proBNP, 65% by E/E’≥15 and 75% by COMB. B-lines number was correlated to NT-proBNP (r=.72;p<.0001), E/E’ratio (r=.68;p<.0001) and CCS (r=.42;p<.0001). LUS and CCS were tested in a multiple ROC analyses (figure). Considering combined method (E/E’≥15 and/or NT-proBNP>1000pg/mL) as reference for PC, ROC analysis yielded a C statistic of .89 for LUS (95% CI: .82-.96), with a cut-off of >15 B-lines to maximize sensitivity (85%) and specificity (83%).

Conclusion: In a HF outpatient clinic, LUS B-lines correlated significantly to more established parameters of decompensation presenting always a high accuracy. Given its accuracy, LUS should be considered a useful tool for a quick and reliable assessment of PC in HF outpatients.