Predictors of unfavourable outcome in clinically stable, low risk acute pulmonary embolism patients (sPESI 0)

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Introduction: Nowadays one of the most challenging tasks is to identify, within the large group of normotensive and clinically stable acute pulmonary embolism (APE) patients, those who are at "sufficiently low" risk to permit early discharge and home treatment. Current ESC guidelines suggest, that troponin measurement is optional in sPESI 0 patients.
Aim: The aim of this study was to assess whether right ventricular dysfunction (RVD) in transthoracic echocardiographic examination (TTE) and/or elevated plasma troponin level improves in-hospital risk stratification in sPESI 0 patients.
Methods: Post-hoc analysis of a prospective study of 1191 patients with at least segmental APE confirmed in computed tomography (CT). Among this group 434 patients (208 F, age median = 52 yrs [39; 67]) were classified to low risk group according to sPESI. TTE and TnT concentration were assessed within the first 24-hours from admission. Echocardiographic criteria for RVD were RV/LV ratio≥1 or tricuspid regurgitant pressure gradient ≥31 mmHg. The sPESI score was calculated from patient records. The combined endpoint (CE) included in-hospital death of any cause and/or haemodynamic deterioration requiring catecholamines i.v., rescue thrombolysis, cardio-pulmonary resuscitation, cardiac surgical intervention or percutaneous catheter-directed treatment.
Results: Among 434 sPESI 0 patients, cardiac troponin plasma level was assessed in 409 individuals, 136 results were above the normal limit. CE occurred in 6 patients with elevated and 0 with non-elevated troponin concentration (p=0,0013).
In 253 cases high-sensitive troponin (hsTnT) assays were used. Median hsTnT concentration was significantly higher in patients with CE (0,032 ng/ml [0,024; 0,127] vs 0,09 ng/ml [0; 0,025])
SPESI and hsTnT assessment showed AUC ROC=0.834 (0.727–0,941; p=0.000) for the CE with suggested threshold 0,024 ng/ml (Fig. 1).
Interestingly, no statistically significant differences in RV/LV ratio or TRPG between CE and non-CE group were observed. Furthermore, CE did not occur more often in patients with RVD (7 vs 1; p=0,067).
Conclusion: SPESI combined with normal cardiac troponin plasma concentration may be used for predicting favourable outcome in patients with APE and thus select candidates for home treatment. We suggest to assess plasma troponin levels in all normotensive patients early, before discharge to home treatment. However, due to relatively low number of endpoints, these findings need to be confirmed in further studies enrolling more patients.

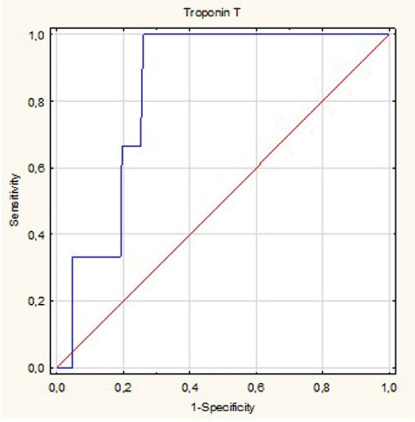

Figure 1. hsTnT ROC