Abstract: P602

Risk predictors of in-hospital mortality in patients with pulmonary embolism

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Introduction. Venous thromboembolism (VTE) is known as the third leading cause of death after coronary artery disease and stroke. 10-30% of patients with VTE die within a month after the first event, mostly due to pulmonary embolism (PE). In-hospital mortality in PE varies from 2% in normotensive patients to 30% in those with cardiogenic shock. Therefore, predicting the outcome of PE is extremely important, as well as identifying a group of patients who do not need to be hospitalized.

The aim was to evaluate the predictors of the risk of death in patients with pulmonary embolism.

Material and methods. 383 consecutive patients (49.6% men; average age 57.4 ± 14.4 yrs) with PE, hospitalized to our center from 23.04.2003 to 18.09.2014 were enrolled into the study. In all cases PE was confirmed by computed tomographic pulmonary angiography (CT) and rarely by pulmonary angiography (PA), or by pathology. Patients management was in accordance with appropriate European guidelines. Overall in-hospital mortality was 7.05%.

Data of patients’ history, clinical symptoms, biochemical markers and instrumental methods (ECG, echocardiography, CT-angiography/PA), as well as details of medical treatment were analyzed by one-dimensional logistic regression.

Significant clinical predictors in our population were: age (OR 1.030, 95% CI 1.000-1.061, p = 0.052), femoral fracture (OR 11.000, 95% CI 2.328-51.982, p = 0.002), joint replacement (OR 14.160, 95% CI 3.913-104,785, p = 0.009), chronic lung diseases (OR 4.338, 95% CI 1.588-11.846, p = 0.004), immobilization more than 3 days (OR 3.696, 95% CI 1.142-11.958, p = 0.029). In-hospital risk of death was increased by signs of shock on admission (OR 8.550, 95% CI 3.104-23.549, p = 0.000), hypotension (OR 3.640, 95% CI 1.538-8.612, p = 0.003), and syncope (OR 3.136, 95% CI 1.421-6.921, p = 0.005). Among all ECG criteria of PE only appearance of SI-QIII sign was related to the risk of death (OR 2.799, 95% CI 1.279-6.126, p = 0.010). Positive troponin also showed significant effect on outcome (OR 1.429, 95% CI 1.006-2.032, p = 0.046).

Multivariate analysis revealed that femoral fracture (OR 34.420, 95% CI 3.682-321.754, p = 0.002), joint replacement (OR 26.860, 95% CI 2.201-327.755, p = 0.010), systolic blood pressure (OR 0.997, 95% CI 0.960-0.999, p = 0.037), and SI-QIII sign (OR 4.112, 95% CI 1.474-11.477, p = 0.007) had significant effect on outcome. Interestingly, that among two risk models evaluated - GRACE and PESI, only GRACE score (> 113 points) was associated with worse prognosis (OR 1.040, 95% CI 1.013 -1.067, p = 0.003 vs. OR 1.022, 95% CI 0.999-1.046, p = 0.056, respectively for GRACE and PESI).

Conclusions. In unselected population of patients with PE the main predictors of death were femoral fracture, joint replacement, systolic blood pressure level, GRACE score, and SI-QIII sign on ECG.