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RISK FACTORS FOR CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION AFTER ACUTE PULMONARY THROMBOEMBOLISM

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Objective To assess the incidence of CTPH in patients with acute PTE after long-term follow-up and evaluate risk factors for CTEPH.

Methods (1) We enrolled 104 patients with CT angiography-proven PTE and collected clinical data to calculate Wells score and revised Geneva score. (2) Recorded blood lab data (blood gas analysis, CK-MB, D-dimer and so on). Calculated the ECG score according to 12-lead ECG. Estimated diameters of heart chambers by echocardiogram. PASP was estimated from the Doppler-estimated tricuspid valve regurgitant. Evaluated Qanadli obstruction index and Mastora obstruction index correlated with CTPA. (3) Patients were treated with thrombolysis plus anticoagulation or anticoagulation only. (4) Patients were followed up by telephone or clinic visit to assess the WHO cardiac functional grade. Echocardiography Doppler and CTPA were performed regularly. The times and reasons of death and readmission were recorded during study period. (5) The authors defined CTEPH as PASP \geq 37 mm Hg accompanied with WHO cardiac functional grade II–IV or PASP \geq 51 mm Hg. (6) To document the incidence and risk factors of CTPH after statistical analysis.

Results (1) Of the 104 patients, seven patients were lost. Thus 97 patients were followed up. The maximum was 62 months, the average was 25.47 \pm 16.94 months. The incidence of CTEPH was 14.4% (14/97). (2) Baseline pulmonary artery pressure, recurrent PTE, diameter of right atrium, diameter of right ventricular and CK-MB were significantly different between CTEPH and non-CTEPH ($p<0.05$). Wells score, revised Geneva score, ECG score, blood gas analysis, D-dimer, Qanadli obstruction index, Mastora obstruction index and the percent of thrombolysis plus anticoagulation were similar between patients with and without CTEPH ($p>0.05$). (3) Higher CK-MB (OR, 8.3), baseline pulmonary artery pressure (OR, 5.0 per 20 mm Hg increment) were risk factors for CTEPH.

Conclusion (1) The incidence of CTPH in patients with acute PTE was 14.4% after at least 3 months of therapeutic anticoagulation. (2) Higher CK-MB and higher baseline pulmonary artery pressure increased the risk of CTPH.