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Title: The incidence of venous thromboembolism recurrence in patients after first episode acute pulmonary embolism and related risk factors

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Body: Background: Early identification of recurrent venous thromboembolism(VTE) in patients with first episode acute pulmonary embolism(PE) and related risk factors is important in clinical practice. Objectives: To investigate the incidence of recurrence after PE, and identify clinical parameters associated with a higher likelihood of recurrence. Methods: Consecutive patients with acute PE from 2006 to 2010 were enrolled. Baseline clinical data was collected and patients were followed up for years. The primary endpoint is symptomatic recurrent VTE and the second endpoint is death. Results: 612 patients were included. The median follow-up period was 36 months and all-cause mortality was 17.3%. The 1-, 2- and 5-year cumulative recurrent incidences were 3.9%(95%CI 2.3%-5.5%), 6.9%(95%CI 4.9%-8.9%) and 13.5%(95%CI 10.2%-16.8%) respectively. Patients with unprovoked PE(HR 3.512,95%CI 1.810-6.814), concurrent deep venous thrombosis(DVT)(HR 5.390,95%CI 1.833-15.846) or varicose vein of lower limbs(HR 4.286,95%CI 2.210-8.313) had higher risk in recurrence. Conversely, patients with longer duration of anticoagulation(HR 0.971,95%CI 0.952-0.991) suffered less.

Conclusions: VTE recurrence is relatively common. Unprovoked PE, concurrent DVT and history of varicose vein of lower limbs seem to increase the risk of recurrence. Longer duration of anticoagulation seems to protect patients from recurrent VTE.