

VALIDATION OF A SIMPLE NON-INVASIVE ALGORITHM FOR RULING OUT CTEPH SIX MONTHS AFTER ACUTE PULMONRY EMBOLISM

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Objective:

International guidelines do not provide strong recommendations on the duration and intensity of follow-up after acute pulmonary embolism (PE), nor on screening-programs for chronic thromboembolic pulmonary hypertension (CTEPH). We aimed to address this gap by performing an external validation of the non-invasive “CTEPH rule-out-criteria” to exclude CTEPH in the long-term course of PE based on a normal NT-proBNP level and the absence of 3 specific ECG characteristics [Thromb Res 2011;128:21-6].

Methods:

134 consecutive patients with acute PE underwent echocardiography after a 6-month treatment period. Predefined echocardiographic criteria in accordance with the ESC guideline on pulmonary hypertension were used to categorize patients as either “pulmonary hypertension (PH) unlikely” or

“PH possible/likely”. The latter patients underwent further (invasive) diagnostic procedures. NT-proBNP values and ECGs, both assessed at the day of echocardiography, were evaluated post-hoc.

Results:

Sixty-three patients (47%) scored none of the CTEPH rule-out criteria, of whom 61 had a normal echo (97%). Twenty-five patients (19%) were categorized by echo as “PH possible/likely”; 6 of them were diagnosed with CTEPH. The sensitivity of the CTEPH rule-out criteria to exclude CTEPH was 100% (6/6 patients identified), and to exclude echocardiographic defined “PH possible/likely” 92% (23/25 patients identified): 2 asymptomatic patients with slightly elevated echocardiographically estimated systolic pulmonary artery pressures of 36 mmHg and 38 mmHg, respectively, who remained clinically and echocardiographically stable during further 2-year follow-up, were not identified. Inter-observer agreement for the adjudication of the ECG characteristics was excellent (kappa-statistic 0.97).

Conclusions:

In this external validation cohort, we confirmed the sound diagnostic accuracy and reproducibility of the CTEPH rule-out criteria. When applied as first test in a CTEPH screening-program, echocardiographic examination could have been avoided in half of our patients.