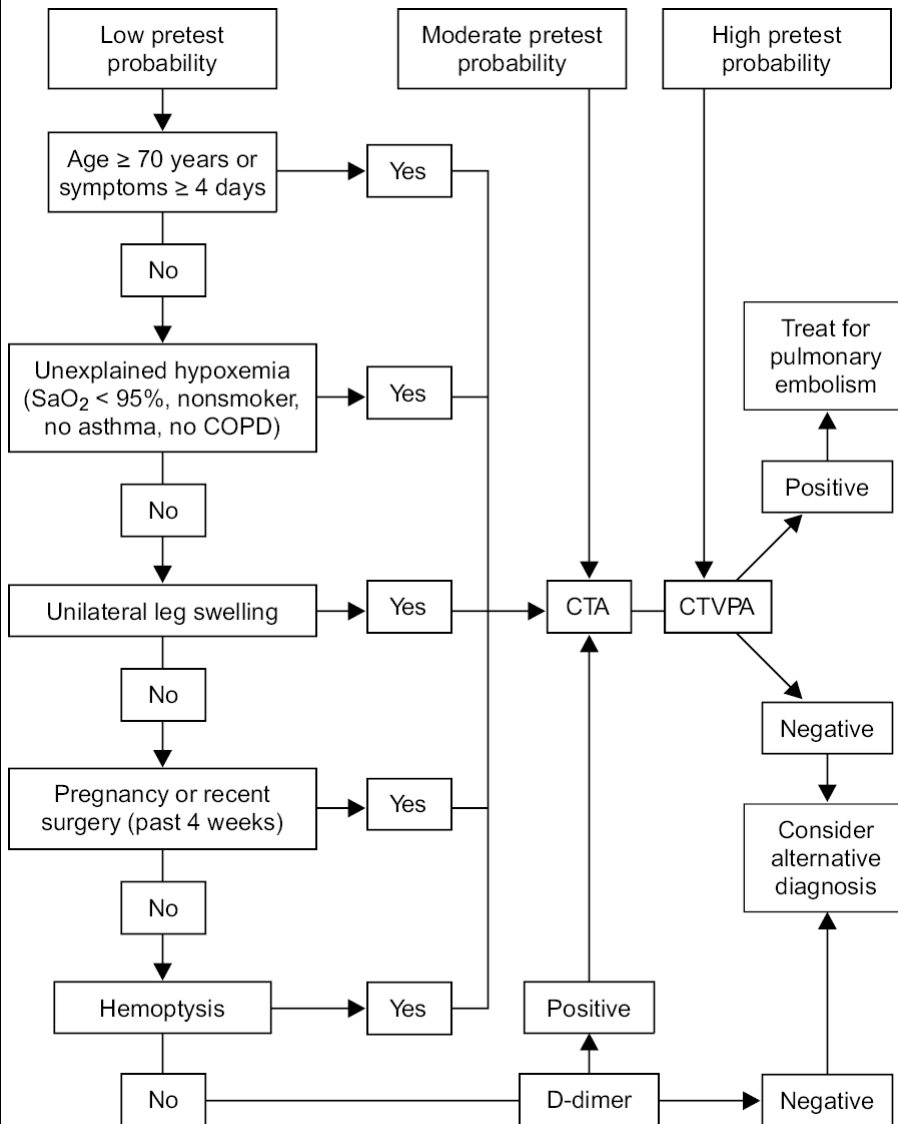


Algorithm for Diagnosis of Pulmonary Embolism with CT Angiography



A multicenter U.S. study published a simple decision rule based on a set of predictors derived from an outpatient emergency department population (1). A slight modification of this rule using the four strongest predictors would be expected to increase the pretest probability of PE into the moderate to high range. Given that the negative likelihood ratio of D-dimer is 0.1, when the pretest probability is in the moderate to high range, the post-test probability would remain above the diagnostic threshold, thus requiring further testing. Therefore, D-dimer testing is not recommended if the pretest probability is moderate to high or if any of the following are present: unexplained hypoxia, unilateral leg swelling, surgery within the last 4 weeks, or hemoptysis (2). If any of these listed risk factors are present or if the D-dimer is positive, then CT angiography is the recommended diagnostic study. A patient may be considered for discharge if eligible for D-dimer testing and the result is negative or if CT angiography is negative. If the physician is concerned about missing a subsegmental PE, CTVPA or ultrasound of the lower extremities may be considered. Clinical guidelines and algorithms have the potential to improve health outcomes and reduce costs. However, what is the best care for the majority of patients, as recommended in a guideline, may be inappropriate for the individual patient (3). Physicians must continue to use good clinical judgment when deciding when to follow the algorithm. A similar approach using a dichotomous (PE likely, unlikely) pretest probability estimation has been shown to be effective and safe (4).

COPD = chronic obstructive pulmonary disease; CT = computed tomography; CTA = computed tomographic angiography; CTVPA = combined computed tomographic venography and pulmonary angiography; SaO₂ = arterial oxygen saturation.

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