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Discharging Low Risk PE

Case:
34 y/o female POD 6 from laparoscopic cholecystectomy presents to ED with acute shortness of breath and chest pain. She takes an OCP for menorrhagia. On presentation, patient's vital signs are T 37.6, HR 106, RR 24, BP 134/79, SpO2 93% on RA. You decide to obtain CTA of chest, which shows non-massive pulmonary embolism. Bedside Echo shows no RV dilatation or strain and patient has remained hemodynamically stable. You decide to immediately anticoagulate. What is the ultimate disposition of this patient?

During my brief time as an EM resident, I have admitted all of my patients with a pulmonary embolism, whether it was massive or subsegmental with hemodynamic stability. I had learned that EM physicians, especially in other countries, are often discharging less severe PE patients, and wanted to see the evidence behind this clinical decision.

Several studies have evaluated adverse events of admission versus discharge for patients with pulmonary embolism. In a trial of 344 patients with low risk PE receiving either inpatient (IV heparin bridged with warfarin) or outpatient (LMWH bridged with warfarin), there was a higher rate of recurrent venous thromboembolism and major bleeding associated with the inpatient group versus the outpatient group with no difference in mortality. A 2013 meta-analysis proved there was no statistically significant difference in recurrent venous thromboembolism in patients treated as outpatient versus inpatient for low risk pulmonary embolism.

So how do we classify "low risk" pulmonary embolism. The **simplified pulmonary embolism severity index (sPESI)** is a validated prognostic scoring system for the management of patients with acute PE. It assigns a point for the following clinical features: age > 80 years, history of cancer, chronic cardiopulmonary disease, pulse greater than or equal to 110, systolic blood pressure less than 100mmHg, and SpO2 less than 90%. Low risk is defined as a score of 0. A retrospective evaluation of the EINSTEIN PE trial (4,831 randomized patients) showed that patients with sPESI scores of 0 or 1, the incidence of deadly PE, mortality, and other adverse outcomes including bleeding was low at 7, 14, and 30 days. Patients with sPESI of 2 or greater, there was a statistically significant increase in recurrent venous thromboembolism, fatal PE, all-cause mortality, and major bleeding than patient with sPESI scores of 0 or 1. The EINSTEIN PE trial compared rivaroxaban (15 mg PO BID for 3 weeks, followed by 20mg PO daily thereafter) versus the "standard therapy" of lovenox bridged with warfarin. The rivaroxaban group has significantly lower major bleeding compared to the standard group.

This literature search will definitely change my future practice. My future patients deemed low risk by sPESI (score of 0 or 1) with non-massive PEs should be able to be safely discharged from the ED on either lovenox/warfarin or rivaroxaban (Xarelto).

References

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