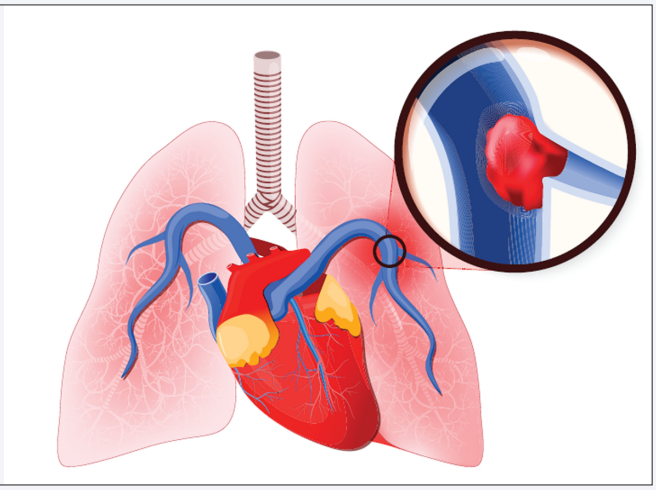
Clinical decision support tool in ED increases outpatient PE management

Implementing an integrated electronic clinical decision support system (CDSS) to facilitate risk stratification and decision making for physicians in the emergency department (ED) resulted in a greater percentage of patients with acute pulmonary embolisms (PEs) being managed on an outpatient basis, according to results of a pragmatic trial published in the *Annals of Internal Medicine*.[1]

Many low-risk patients presenting to the ED with an acute PE can be managed on an outpatient basis, but hospitalization rates are high (>90%). "One impediment to home discharge is the difficulty of identifying which patients can safely forgo hospitalization," wrote the study authors. Therefore, interventions are needed to decrease unnecessary health care use (e.g., hospitalizations) while safely and effectively managing patients presenting with an acute PE.



Study overview

Vinson and colleagues conducted a controlled pragmatic trial to assess the effects of adding an integrated CDSS into the ED patient care workflow at community hospital sites to help manage patients presenting with an acute PE. Ten ED sites received a multidimensional technology (i.e., CDSS) and educational intervention at month 9 of a 16-month study, and 11 additional sites served as controls. The first 8 months were considered the preintervention period, and the second 8 months were the postintervention period.

The CDSS facilitated identification of patients with a PE who may be eligible for outpatient care or short-term observation in the ED by using a validated risk-stratification tool, the PE Severity Index, and common outpatient exclusion criteria.

The tool gave evidence-based, open-ended, site-of-care recommendations that were assistive rather than directive, such as "outpatient management is often possible," for low-risk patients (classes I and II); and "inpatient care is often indicated," for higher-risk patients (classes III to V). This was done specifically to give the physician users the flexibility to manage patients at their discretion—they were informed but not bound by patient-specific risk stratification. In addition, intervention sites had physician champions and incentives for physicians after initial enrollments in the trial.

A total of 881 patients with a PE were managed at the 10 intervention sites, and 822 with a PE were managed at the control sites. The researchers noted that adjusted home discharge rates increased at intervention sites from 17.4% in the preintervention period to 28% in the postintervention period ($P < 0.001$), but no such increase was observed at control sites (15.1% preintervention vs. 14.5% postintervention, $P = 0.88$). No increases were seen in 5-day return visits for PE-related signs, symptoms, or interventions or for 30-day major hemorrhage, recurrent venous thromboembolism, or all-cause mortality associated with CDSS implementation.

Applicability

The current trial suggests that the CDSS, along with physician champions and physician education, increased home discharge of patients with an acute PE without an increase in adverse outcomes.

The study authors concluded, "Identifying the most appropriate venue of care for patients with acute medical conditions is a key priority for transforming U.S. health care. The use of CDSSs to bring validated risk-stratification tools to the ED bedside could help advance this agenda and could be expanded beyond PE to improve care and resource use for other clinical conditions."

Authors of an accompanying editorial noted that implementing a CDSS to increase outpatient management of acute PE is not that simple.[2] They pointed out that in the study by Vinson and colleagues, patients had rapid follow-up once discharged, and this may not be feasible at other sites.

Also, they wrote that patients treated at home should be counseled about the psychological and emotional ramifications of PE as well as its risks, prevention, and complications. This education would require nearly immediate access to outpatient services—which, again, may not be available at many sites.

They commented on two additional trials (HoT-PE and MERCURY PE) that will supplement our knowledge about the risks of home treatment of low-risk patients with a PE. In the meantime, the current results provide some evidence for safe home treatment of select patients with an acute PE.

References

1. Vinson DR, et al. Ann Intern Med. 2018;169:855–65
2. Stein PD, et al. Ann Intern Med. 2018;169:881–2

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