Ambulatory management of acute pulmonary embolism at Poole Hospital NHS Foundation Trust

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Abstract

Aims: At Poole we offer ambulatory management for patients with pulmonary embolism (PE) deemed at ‘low-risk’. This decision has been by clinical judgement awaiting new evidence. We aimed to evaluate local ambulatory management of PE including safety and costs.

Methods: We reviewed a random sample of fifty patients to determine if they were ambulated or admitted, calculate their simplified pulmonary embolism severity index (sPESI) score, and identify any readmissions or mortality.

Results: The majority of patients were ambulated (n = 29). No patients had documented sPESI but decision to ambulate correlated with calculated sPESI (P-value = 0.02). There was no difference in readmissions (P-value = 0.43) or mortality (P-value = 0.63). Ambulatory management saved bed days and reduced costs.

Conclusion: We support ambulatory management of patients with PE deemed at ‘low-risk’ by clinical judgement. Our approach to ambulation and risk stratification was safe but differs from guidelines. We intend to review our practice in light of newly-published guidelines and in particular to consider formal use of Hestia criteria.

Background

Most recent ESC guidelines for management of PE (1) imply admission for all patients. However, they also recommend that haemodynamically-stable patients should undergo risk stratification using sPESI and to “consider early discharge” for “low-risk” patients (sPESI = 0).

Newly-published BTS guidelines for early outpatient management of PE (2) recommend use of either sPESI or Hestia criteria. If right ventricular dilation then they also recommend testing of cardiac biomarkers. This pathway is summarised in figure 1.

At Poole the local pathway for management of PE is referral to the acute medical team. Clinical judgement without a formal scoring system is used to triage patients to either ambulatory clinic or acute medical unit. Patients targeted to the ambulatory clinic are typically discharged the same day.

Aims

• Evaluate local methods of risk stratification for ambulatory management of PE.
• Evaluate safety of ambulatory management in terms of readmissions and mortality.
• Evaluate costs of ambulatory management in terms of bed days and financial analysis.

Discussion

Ambulatory management was safe and cost-effective. However sample size was limited by local incidence of PE. Our approach to risk stratification differs from guidelines, in particular by forgoing a formal scoring system and by combining of sPESI with troponins may have additional suitability for ambulatory management.

Clinical risk stratification correlated with sPESI. Although sPESI predicted all cases of mortality, none of the deaths in the ambulated group were PE, and we would question admission on the basis of older age or history of cancer alone. Conversely, clinical judgement may take into account additional factors such as abnormal ECGs, shown to be associated with poor outcome in PE (8). Clinical judgement also allows for “soft” indications for admission such as pain control or social concerns. Together, we would advocate clinical judgement rather than sPESI, but the addition of a formal exclusion system such as the Hestia criteria may provide a safe but clinically-relevant “checklist”.

Guidelines recommend measurement of cardiac biomarkers such as troponins only for “high-risk” patients (sPESI ≥ 1) (1) or those with right ventricular dilation (2). However combination of sPESI with troponins may have additional prognostic value, especially for the identification of low-risk patients (4). Our current practice is to routinely consider measurement of troponins to aid clinical decision-making.

Recommendations

• We support ambulatory management of patients with PE deemed at low-risk.
• We plan to continue to use clinical judgement to identify suitability for ambulatory management.
• We would consider formal use of Hestia criteria but not sPESI to aid decisions for ambulatory management.
• We support routine use of ECG and troponins to inform clinical risk assessment, even for otherwise low-risk patients without right ventricular dilation.

References