Pulmonary embolism (PE) is a blood clot within blood vessels of the lungs. It is often caused by a leg vein blood clot dislodging and travelling to the lungs via the blood. In a small number of PE patients, this can be serious. One example is if the blood clot is large and obstructs the blood flow through the heart or lungs. PE can also be serious if the patient already has severe heart or lung disease. In most cases, anticoagulants are given, which are drugs that allow the clot to dissolve and prevent the blood from clotting further. Over a period of days to weeks, the blood clot will become smaller and disappear. Most patients will be given anticoagulants at diagnosis and then sent home. However, some may need to be admitted to hospital for a few days for observation. This BTS guideline gives advice on assessing PE patients so those at ‘low risk’ can be allowed home straight away.

The risk of PE complications can be assessed by a patient’s age, medical history and observations (e.g. heart rate and blood pressure). Two checklists, the PE Severity Index and the Hestia Score, are used in this assessment. Both these checklists have been clinically tested. The guideline recommends the use of these checklists to assess if PE patients can safely be allowed home.

Other tests can be used to assess if a patient is at risk of complications. These include blood tests, ultrasound scans of the heart (echocardiogram) and CT scans. A patient usually has a CT scan of the heart and lungs to diagnose PE. Although these tests are useful, generally they do not improve the checklist assessments in predicting who is safe to send home.

While checklists are instructive, they should always be used alongside clinical judgement. No checklist, with or without extra tests, can predict risk with 100% accuracy. For patients identified as ‘low-risk’ on the checklists, about 1 in 100 have complications one month later. This includes death.

However, complications cannot always be prevented by hospital admission at PE diagnosis. Complications can occur after a patient leaves hospital, or they may not be directly caused by the PE. One example is a patient’s PE being caused by cancer. Because of this uncertainty, the guideline recommends that all PE patients being sent home are checked by a senior doctor. This can also be a specialist PE management nurse, who has support from a senior doctor. Even if a patient meets the checklist criteria for outpatient management, they may need to stay in hospital, e.g. if they need palliative care.

The availability of diagnostic tests, like CT scans, can be limited out of standard working hours. This can lead to a delay in a PE diagnosis being confirmed. In these cases of ‘suspected PE’, the guideline recommends that patients receive a diagnostic scan within 24 hours. ‘Suspected PE’ patients will also be assessed for their risk of PE complications. Those at ‘low-risk’ can also be sent home on treatment and will return for a diagnostic scan the next day.

A new class of anticoagulant, direct oral anticoagulants (DOACs), has been approved to treat patients with PE. These drugs can be administered as soon as a diagnosis of PE is made. DOACs do not need blood monitoring, unlike other anticoagulants (e.g. warfarin), but may not be suitable for all patients. The guideline supports the use of DOACs in outpatient management of PE. This includes those with ‘suspected PE’ who are awaiting a diagnostic scan.
PE outpatient management patients should be given patient advice on PE. This should include:

i) An introduction to PE.

ii) Potential complications that can arise and what to look out for.

iii) The drugs being given to the patient for PE and their possible side effects.

iv) Details of who to contact, or where to go, if anything happens or questions arise.

v) Details of the patient’s follow-up care.

Information for the public

This document has been prepared as a brief summary of the content and key points from the BTS Guideline for the initial outpatient management of pulmonary embolism. If you have any queries about the guideline and your personal medical circumstances please discuss these with your health care professional.

The full guideline is available on the BTS website at: https://www.brit-thoracic.org.uk/standards-of-care/guidelines/bts-guidelines-for-the-outpatient-management-of-pulmonary-embolism/

The content of this document may be used by health care professionals in discussions with patients and/or carers, but the source of the material must be acknowledged.

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