2019 ESC Guidelines on:
Acute Pulmonary Embolism (Diagnosis and Management).

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Introduction

There have been some major changes since the 2014 guidelines, highlighting new therapies available and new evidence.

Diagnosis

New concepts such as using D-Dimer age-adjusted cutoffs in patients over the age of 50 (IIaB) and imaging assessment of RV by ECHO or CT for prognostication are now a consideration in the guideline (IIaB), even in low risk cases.

Management

Acute

There have been advancements in the acute treatment of patients, where there is circulatory collapse, with the availability of advanced extra corporeal membrane oxygenation circulatory support (ECMO) and centres which are available to deliver this. ECMO is now a class IIb level C recommendation in combination with surgical embolectomy or catheter directed treatment, in patients with refractory circulatory collapse or cardiac arrest. The guideline now supports the use of inotropes, with use of norepinephrine and/or dobutamine in patients with high risk PE, defined as patients who have had cardiac arrest, shock or persistent hypotension (Class IIa level C). Rescue thrombolytic therapy in patients with haemodynamic deterioration on anticoagulation is now an IB recommendation.

Anticoagulation

With regards to anticoagulation, this is where there has been a major shift in the guidelines to favour Non-vitamin K antagonists Oral Anticoagulation (NOAC) over warfarin (VKA) as first line. Importantly, the guidelines also highlight where not to use NOAC, for instance in severe renal impairment, during pregnancy and antiphospholipid syndrome.

Therapeutic anticoagulation is now recommended for three or more months for all patients with PE (Class IA). Extended anticoagulation of indefinite duration should now be considered in patients with a first episode of PE with no identifiable risk factors and patients with minor transient or reversible risk factors (Class IIa). If extended anticoagulation is considered, after 6 months of

therapeutic anticoagulation, reduced doses of apixaban (2.5mg BD) or rivaroxaban (10mg OD) should be considered. This is a shift away from giving timelines and completely stopping anticoagulation after the index case. The exceptions are in bleeding patients and patients with cancer. Aspirin has been taken out of the guidelines.

Special circumstances:

There have been some major changes in the guidelines with regards to anticoagulation of patients with PE and active cancer. Although low molecular weight heparin (LMWH) has always been considered first line over VKA's, the duration should be for atleast 6 months. Edoxaban and rivaroxaban can now be considered an alternative to LMWH with the exception of gastrointestinal cancers.

In pregnancy, treatment should be a fixed dose of LMWH based on early pregnancy body weight (IB). Thrombolysis and surgical embolectomy should be considered in high risk PE. There is also formal guidance on insertion and removal of spinal/epidural needles.

Outcome

The use of multidisciplinary teams for management of high and intermediate risk PE is now in the guidelines as a IIa level C recommendation. This is to ensure that appropriate follow up (3-6 months) with a hospital specialist and care is arranged to rule out post PE complications. Class IC guidance suggests that if the patient is symptomatic with persistent mismatched perfusion defect beyond 3 months, a referral to a pulmonary hypertension centre should be made to rule out Chronic thromboembolic pulmonary hypertension (CTEPH).

Conclusion

The most important changes in these guidelines focus on the introduction of NOACs as first line. There is also an increased focus on RV assessment and new guidance for formal follow up.