Pulmonary Embolism

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Presentation

Symptoms: often **nonspecific;** dyspnea, cough, chest pain, hemoptysis & syncope
Examination: tachypnoea, fever, hypoxia, tachycardia, elevated JVP, loud P2, S3/4 gallop & diaphoresis

Investigation

FBC/liver/renal, D-dimer, PT/APTT/fibrinogen, troponin, BNP/ NT-proBNP, ABG
ECG: sinus tachycardia, QR in V1, TWI V1-4, RBBB, S1Q3T3
Radiology: CXR, CT pulmonary angiography, V/Q scan
Echocardiogram: evidence of RV strain

1. Thrombolysis?

Consider if massive or high-risk sub- massive PE

Otherwise unexplained SBP <90mmHg

A. Systemic thrombolysis

First line: alteplase 100mg IV over 2h std dose; 2% risk ICH; 6% risk of other major bleed

B. Catheter-directed lysis

If higher bleeding risk ; IR dept

C. IR- thrombectomy

Failed or CI to tPa

D. Surgical embolectomy

Last resort/ CI to tPa; approx. 10% mortality

No evidence of hemodynamic instability

SBP >90mmHg

2. Anticoagulation

For all patients

Specific treatment

Initial: SC LWMH

UFH if high risk for requiring tPa
Commence DOAC first-line if low risk

Discharge: DOAC

Unless renal disease , mod/ severe liver disease or anti-phospholipid syndrome
LWMH/ Apixaban (Caravaggio) in cancer associated VTE

Consider retrievable IVC filter if CI to OAC

****Retrieve as soon as OAC restarted****

3. Supportive Care

Should not be delayed

Telemetry & Bed Rest

If sub-massive PE or evidence of RV strain

Unprovoked ?

Look for underlying cause

Full hx and examination, basic bloods, CXR
Gender/ age specific tests: FOB, PSA, mammogram, smear
± CT TAP, scopes only if above tests suggestive

Oxygen as needed to maintain 02 Sats

Appropriate analgesia & education

4. OAC Duration

Unprovoked versus risk factors

1° treatment (3-6/12)

Everyone

± 2° treatment (indefinite)

Unprovoked/ chronic risk factors
Reassess risks and benefits regularly

Risk stratification

Wells' criteria: pre- test probability of PE

0- 2: 3.6% (low)
3- 6: 20.5% (mod)
>6: 66.7% high

Consider D-dimer in moderate/high risk groups

Clinical signs & sx of DVT	3 points
No alternative dx	3 points
HR >100	1.5 points
Immobilisation >3d/surgery in last 4/52	1.5 points
Haemoptysis	1 point
Malignancy w active RX in last 6/12 or pall care	1 point

PESI: predicts 30- day mortality

<65: v low risk
66- 85: low risk
86- 105: intermediate
106-125: high risk
>125: v high risk

Age	SBP <100mmhg
Sex	RR >30
Hx Cancer	T <36
Hx heart failure	02 sats <90% RA
Chronic lung disease	HR >110
Altered mental status	

Consider RV function, biomarkers and hemodynamics when deciding management in intermediate/ high risk groups

Risk factors

Transient

<u>MAJOR (within 3/12 of VTE)</u>
Surgery GA >30mins
Bedbound >3d with acute illness
C-section

<u>MINOR (within 2/12 of VTE)</u>
GA <30mins
Admission >3d with acute illness
Oestrogen
Pregnancy/ PP
Bedbound at home >3d with illness
Leg injury with reduced mobility >3d

Chronic (persistent)

Active cancer
IBD
AI disorder
Chronic infections
Chronic immobility