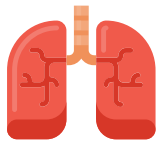


Acute Pulmonary Embolus



Refer EARLY to KIDS NTS for advice - 0300 200 1100

Introduction:

- Thromboembolism in the form of pulmonary embolism (PE) remains a rare occurrence in children. However, there is evidence to suggest rates are increasing and that it remains under diagnosed.
- There is very little paediatric specific evidence to inform diagnosis, investigation or management of PE in children.
- A patient may not be symptomatic until an embolism obstructs >50% of the pulmonary circulation.

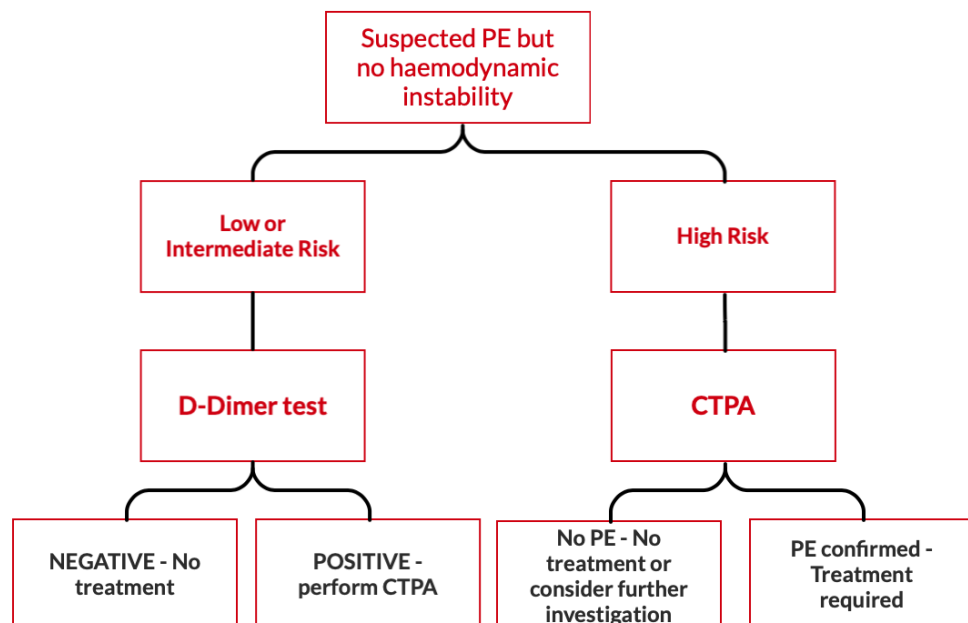
Signs or Symptoms:

- Most common - Shortness of breath, Sinus tachycardia, Pleuritic chest pain, Hypoxia, Tachypnoea.
- Other - Hypotension (Signs of RV failure), syncope, may be a "silent" presentation.

Risk factors:

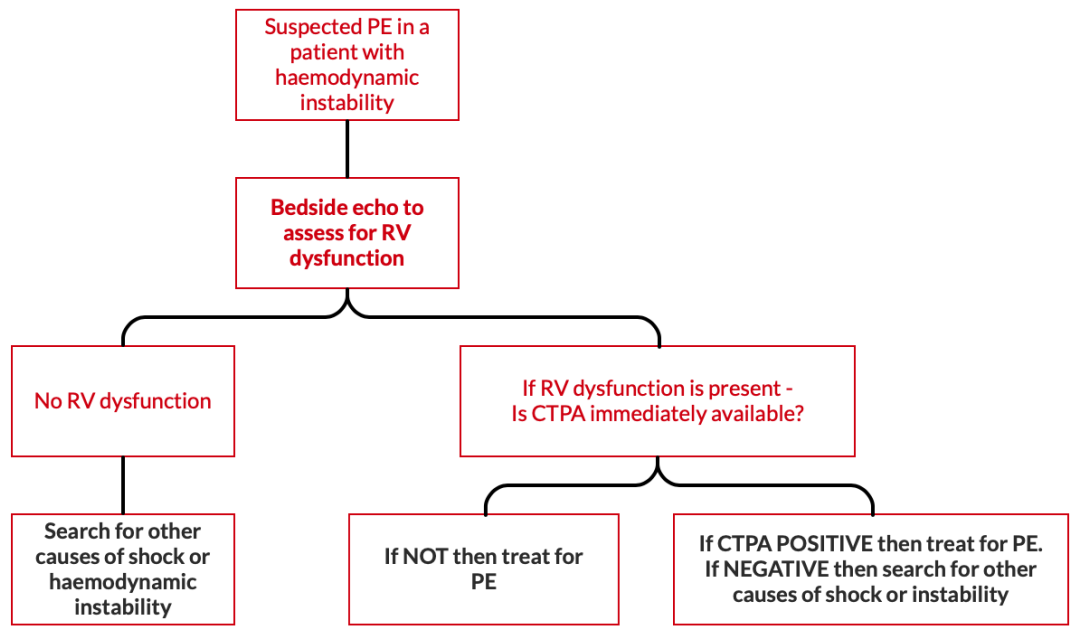
- Indwelling Broviac/Central Line** (remember to look for DVT in the upper limbs).
- Immobility:** surgery, trauma, critical illness.
- Medical Diagnoses:** Congenital Heart Disease; Malignancy; Oral contraception; Obesity; DVT; Inherited thrombophilia: Protein C and S deficiency, Factor V Leiden.

	Low risk	Intermediate risk	High risk
Other diagnoses more likely		1 risk factor + signs/symptoms	> 1 risk factor + signs/symptoms
Absence of any risk factors		Unexplained sinus tachycardia/SOB/pleuritic chest pain in the presence of one or more risk factors	Associated hypotension
		Unexplained syncope	Previous PE/ thromboembolism
		Family history of PE/DVT <50 years	



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Investigation depending on haemodynamic stability:



Useful Ancillary Investigations:

- CXR to look for other causes; ECG (? right heart strain); Echo; Bloods - FBC, Coagulation screen, Troponin.

Management:

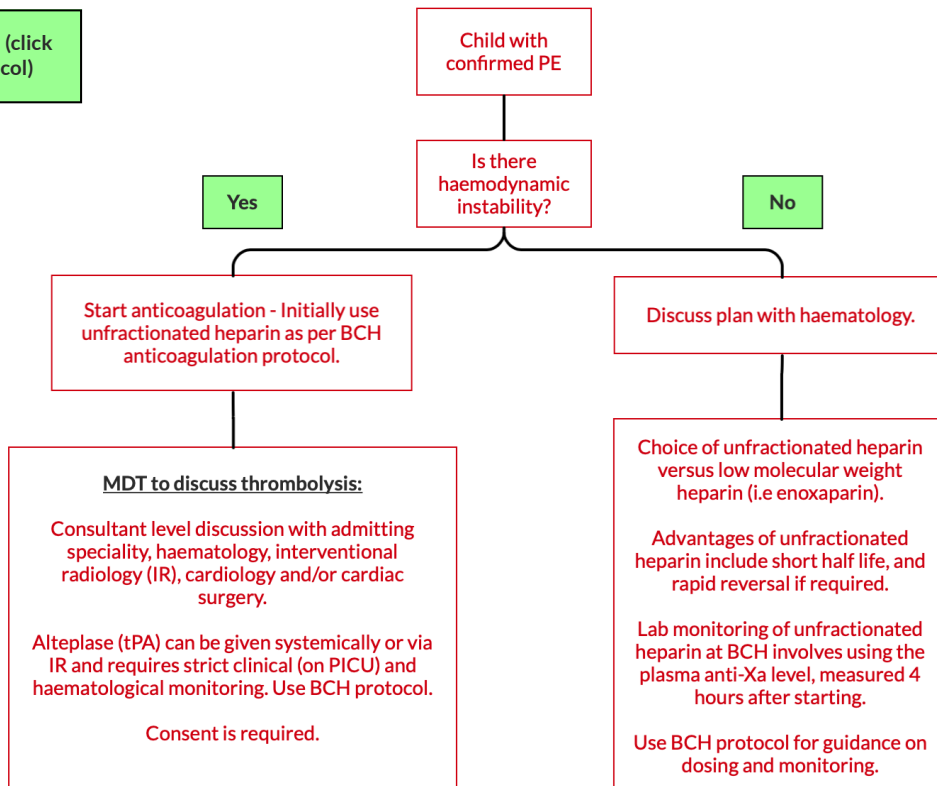
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A/B/C considerations:

- Administration of oxygen to keep O2 sats > 90%, and consideration of escalation of respiratory support if needed - High flow nasal cannula oxygen or CPAP, and/or intubation and ventilation in cases of extreme instability.
- Right ventricular failure - be very cautious with volume resuscitation as volume loading may reduce cardiac output. Consider noradrenaline. Be wary of induction of anaesthesia as medications and positive pressure may reduce venous return and reduce cardiac output.
- Anticoagulation - use flow diagram below and discuss with haematology teams.
- Note - in older child (i.e 15 years) it may be beneficial to discuss with local adult ICU teams for advice.

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Anticoagulation: (click for BCH protocol)



References:

1. 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism. European Heart Journal (2020) 41, 543-603
2. Zaidi AU et al. Pulmonary Embolism in Children. Front Pediatr. 2017;5:170. Published 2017 Aug 10. doi:10.3389/fped.2017.00170
3. BCH Anticoagulation guideline 19th March 2020