

## VASCULAR SPASM AND THROMBOSIS

### VASCULAR SPASM

Blanching or cyanosis of extremity following insertion or manipulation of peripheral or umbilical arterial catheter (UAC)

- **Remove catheter** unless absolutely essential
- **Elicit reflex vasodilation**
  - reflex vasospasm on insertion of UAC can occasionally be corrected by reflex vasodilation by warming contralateral limb
- **Volume expansion**
  - if appropriate, give sodium chloride 0.9% 10 mL/kg as volume expander
- **GTN patch**
  - use can be considered to improve perfusion but not trialled or licensed for use in babies. Discuss with consultant
- Liaise with plastic surgeons, haematologists and other specialists as needed

### VASCULAR THROMBOSIS

Clinical features suggesting vascular thrombosis

Site	Clinical signs	Diagnostic imaging	
Peripheral or central (aorta or iliac) arterial thrombosis	<ul style="list-style-type: none"> <li>• Pallor</li> <li>• Cold arm/foot</li> <li>• Weak or absent peripheral pulse</li> <li>• Discolouration</li> <li>• Gangrene</li> <li>• Difficulty establishing a proper pulse oximetry trace</li> <li>• Delayed capillary refill time on affected limb</li> </ul>	<ul style="list-style-type: none"> <li>• Doppler scan for large vessel thrombus (sensitivity and specificity uncertain in the neonatal period)</li> <li>• Real-time 2-dimensional ultrasound</li> <li>• CT scan with contrast</li> <li>• Contrast angiography (at specialised centre)</li> </ul>	
Renal artery/aortic thrombosis	<ul style="list-style-type: none"> <li>• Systemic hypertension</li> <li>• Haematuria</li> <li>• Oliguria</li> <li>• Renal failure</li> </ul>		
Renal vein thrombosis	<ul style="list-style-type: none"> <li>• Flank mass</li> <li>• Haematuria</li> <li>• Hypertension</li> <li>• Thrombocytopenia</li> </ul>		
Inferior vena cava thrombosis	<ul style="list-style-type: none"> <li>• Cool lower limbs</li> <li>• Cyanosis</li> <li>• Oedema</li> </ul>		
Superior vena cava thrombosis	<ul style="list-style-type: none"> <li>• Swelling of upper limbs and head</li> <li>• Chylothorax</li> </ul>		
Central venous line thrombus	<ul style="list-style-type: none"> <li>• High pressures on long line</li> <li>• SVC obstruction</li> <li>• Chylothorax</li> <li>• Swelling</li> <li>• Discolouration of extremity</li> </ul>		
Right atrial thrombus	<ul style="list-style-type: none"> <li>• Heart failure</li> <li>• Embolic phenomenon</li> </ul>		<ul style="list-style-type: none"> <li>• Echo</li> </ul>
Pulmonary thromboembolism	<ul style="list-style-type: none"> <li>• Respiratory failure</li> </ul>		<ul style="list-style-type: none"> <li>• Lung perfusion scan (at specialised centre)</li> </ul>

## **MANAGEMENT OF THROMBOEMBOLISM**

- Controversial
- Inadequate controlled trials
- Inform consultant
- Liaise with plastic surgeons, haematologists and other specialists as required

### **Treatment options**

#### ***Conservative***

- Observe closely with no intervention e.g. unilateral renal vein thrombosis

#### **Anticoagulation and thrombolysis**

- No controlled neonatal trials
- Use only under guidance from haematologist and/or plastic surgeon