

PAEDIATRIC NURSING PRACTICE MANUAL
SECTION 16

CARE OF THE CHILD WITH A CARDIAC CONDITION

16.1 CARE OF THE PATIENT HAVING A HYPERCYANOTIC SPELL

16.1 CARE OF THE CHILD HAVING A HYPERCYANOTIC (TET) SPELL

To prevent prolonged hypoxia related to a hypercyanotic spell through prompt recognition and effective management.

Background Information ^{1,2}

- A hypercyanotic spell may also be referred to as; 'Tet spell', hypoxic spell, cyanotic spell and/or paroxysmal dyspnoea.
- A hypercyanotic spell occurs in infants with a Tetralogy of Fallot when there is significant pulmonary obstruction, but may also occur with other congenital heart defects that have pulmonary or sub pulmonary stenosis and a ventricular septal defect (VSD).
- Common precipitants include; stressful situations, crying, defecation, feeding, waking from a nap, fever and dehydration.
- Hypercyanotic spells tend to occur in those with mild to moderate cyanosis, at rest and are more common in those with iron deficiency.
- They are characterised by:
 - Period of uncontrollable crying / panic
 - Rapid and deep breathing
 - Worsening cyanosis
- Severe or untreated episodes may progress to loss of consciousness, seizures or even death.
- Whilst medical intervention is indicated to prevent the development of serious complications, many episodes are self limiting.

Key points

- 1 Treatment of spells involves the following procedures in order of increasing complexity.
- 2 Also refer to [Emergency Clinical Guidelines](#) Hypercyanotic Spells in Infants.
- 3 At any stage consider a medical review, MET call, CODE Blue as indicated by the patient's clinical condition. ([PNPM 4.1](#) Code Blue (55) and Emergency Resuscitation).

Nursing Management

1. Initiate a calm environment and pacify the child.
2. Immediately inform shift coordinator, cardiology registrar and treating medical team Registrar.

3. Knee-to-chest 'Squatting':¹⁻³

Place the infant in the knee-chest position either lying supine or over the shoulder (infants will often settle in their parents/carers arms better than nursing staff)



These positions calm the patient, reduces systemic venous return and increases systemic vascular resistance.

4. High flow oxygen (100%) can be administered but usually has minimal effect. If distressing the patient it should be discontinued.¹⁻³
5. Avoid exacerbating the patient's distress by encouraging minimal handling.²
6. Medical staff may;
 - Request continuous ECG and oxygen saturation monitoring.²
 - Prescribe Morphine: **0.1mg/kg** subcutaneously/intramuscularly.^{1,2}
Morphine suppresses the respiratory centre, thereby reducing the hyperpnoea and the resultant systemic venous overload which contributes to the right-to-left shunt. Sedation also reduces the body's oxygen requirement
 - Prescribe Propranolol (a beta-blocker).
 - Obtain IV access if not already available and if patient is not too distressed.
 - Treat any underlying cause/secondary problems which may be exacerbating the episode eg. hypoglycaemia, hypothermia, dehydration.²
7. If the above procedures are ineffective or have suboptimal effect, senior medical staff must be involved in the patients care as specialist management in PICU will be required.

References:

1. Starship Children's Hospital Auckland New Zealand. Starship children's health clinical guideline: Tetralogy of Fallot – Hypercyanotic Spells [Clinical guideline]. 2010. Available from: <http://www.adhb.govt.nz/starshipclinicalguidelines/Tetralogy%20of%20Fallot%20Hypercyanotic%20Spells.htm>. Accessed: 11 June 2013
2. Melbourne RCH-. Cyanotic Episodes (Spells) [Expert opinion]. Clinical Practice Guidelines 2005. Available from: http://www.rch.org.au/clinicalguide/cpg.cfm?doc_id=5186 Accessed: 11 June 2013
4. BMJ Evidence Centre. Best Practice: Treatment options: Tetralogy of Fallot. Management of hypercyanotic spells. British Medical Journal. 2011. Available from: <http://bestpractice.bmj.com.pklibresources.health.wa.gov.au/best-practice/monograph/701/treatment/details.html#expsec-1>. Accessed: 12 June 2013