Seizures

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NETS WA

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

Aim

Summarise the considerations for the safe retrieval of neonates with seizures.

Risk

Delays in recognition and/or management of seizures can place neonates at increased risk of deterioration and adverse neurological outcome. A standardised approach to assessment and management aims to minimise these risks.

Key points

Seizures in the newborn period may be difficult to detect. Symptoms can be subtle, and seizures can have different presentations depending on aetiology and pathophysiology.

Aetiology

- Hypoxic ischaemic encephalopathy (HIE).
- Hypoglycaemia
- Rare metabolic causes such as urea cycle disorders.
- Electrolyte abnormalities such as hypocalcaemia, hypomagnesemia.
- Intracranial haemorrhage.
- Infections (bacterial, viral -especially HSV).

- Structural brain malformations.
- Drug withdrawal.
- Benign Familial Neonatal Seizures.

Presentation

- Apnoea in a term infant should be considered seizure activity until proven otherwise.
- Subtle symptoms: staring, eye deviations, chewing, sucking, lip smacking.
- Clonic movements.
- Tonic movements.
- Tonic-clonic movements.
- Myoclonic movements.

Investigations

Urgent

- Blood gas analyses with electrolytes and PGL.
- Full Blood Count, CRP, Creatinine, Ca, Mg, and LFTs.

Where appropriate:

- Head Ultrasound.
- Conventional electroencephalography (EEG).
- Amplitude-integrated (a)EEG.
- Blood culture.
- Lumbar puncture.
- Urine metabolic screen.
- Plasma amino acids.
- Serum lactate, pyruvate.
- CSF for metabolic studies & infectious aetiology.
- Coagulation profile and thrombophilia screen.
- Further neuroimaging with CAT scan or MRI.
- Genetic testing.

Despite appropriate investigations, there will be cases, where no cause can be found.

Management

- Correct electrolyte disturbance if there is metabolic acidaemia
- If infection cannot be excluded, start IV antibiotics (Amoxycillin, Gentamicin) and if meningitis is suspected add cefotaxime
- If HSV cannot be excluded add acyclovir
- Consider intubation if the airway is unsafe (recurrent apnoea's, and/or seizures, encephalopathic)

Antiepileptic Medication

Indicated when neonate is in status or seizure > 5 minutes. The order of medications is as follows:

- Phenobarbitone (1st line treatment):
- Levetiracetam
- Midazolam
    - Consider only, if seizures persist despite treatment with phenobarbitone, phenytoin and/or levetiracetam.
    - Given as continuous infusion
- Phenytoin
    - Consider phenytoin only, if seizures persist despite Phenobarbitone and Levetiracetam. Please discuss with on call neonatologist before considering Phenytoin.
- Consider Lidocaine in refractory cases and to be used under direction of on call NETS neonatologist.

With all antiepileptic medications, respiratory and cardiac depression may occur. Be prepared for Intubation and Ventilation.

Related CAHS internal policies, procedures and guidelines
Neonatal Guideline Seizures: Neonatal Recognising and Responding to Clinical Deterioration NETS WA Intubation and Ventilation.

References and related external legislation, policies, and guidelines
WNHS Neonatal Medication Monographs

This document can be made available in alternative formats on request.

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