Investigations for neonatal seizures

Acute seizures

Initial screen

 Consider suspected aetiology of seizure

Pathology

Blood

- BGL
- Urea and electrolytes including Ca and Mg
- FBC
- LFT and TBR
- · Blood cultures
- Blood gas for pH, lactate
- NBST
- TORCH screen

CSF

- If infection suspected
 - Microscopy and bacterial culture
 - PCR for bacterial and viral pathogens
 - Glucose
 - o Protein, blood, colour

Urine

- · If infection suspected
 - Microscopy and culture

Imaging

 Cranial USS (and/or MRI as advised by neonatalogist via RSQ)

Underlying cause identified?

Yes

Treat underlying cause(s) as indicated

- Hypoglycaemia—Refer to QCG Newborn hypoglycaemia
- Infection— Refer to QCG EOGBS
- HIE—Refer to QCG HIE
- Other

Subsequent investigations as indicated and advised

Subsequent investigations

- Usually performed in tertiary facility after baby is retrieved
- Guided by specific clinical features of baby and expert advice (e.g. paediatric neurologist or metabolic specialist)

Pathology

Blood

- Ammonia
- If metabolic or other genetic cause suspected:
 - Phenotyping as advised

CSF

- · CSF amino acids
- Neurotransmitters

Urine

- If metabolic cause suspected,
 - o Amino acids
 - o Organic acids
- Alpha aminoadipic semialdehyde
- CMV
- Sulphites
- Creatinine

Congenital infection screen (In addition to initial TORCH)

- Varicella zoster
- Parvovirus B19

Neurophysiology

• EEG or aEEG (if available)

Neuroimaging

MRI spectroscopy

aEEG electroencephalogram, **BGL**: blood glucose level, **CMV**: cytomegalovirus, **CSF**: cerebrospinal fluid, **EEG**: electroencephalogram, **EOGBSD**: early onset Group B Streptococcal disease, **FBC**: full blood count, **HIE**: hypoxic ischaemic encephalopathy, **HSV**: herpes simplex virus, **LFT**: liver function tests, **MRI**: magnetic resonance imaging, **NBST**: newborn bloodspot screening test, **QCG**: Queensland Clinical Guidelines, **SpO2**: peripheral capillary oxygen saturation, **TBR**: Total bilirubin, **TORCH**: toxoplasmosis, other (e.g. syphilis), rubella, cvtomegalovirus. herpes simplex. **USS**: ultrasound scan

Queensland Clinical Guideline. Neonatal seizures. Flowchart: F22.23-2-V2-R27



