Clinical Design & Innovation
Person-centred, co-ordinated care

PAEDIATRICS

FACULTY OF PAEDIATRICS
ROYAL COLLEGE OF PHYSICIANS OF IRELAND

Seizures and other paroxysmal events

BACKGROUND

- Diagnosis is largely based on history
- A clear description of the episode is key
- Camera/mobile phone videos by parents enhance our ability to make an accurate diagnosis
- Epilepsy affects 1 in 200 children

DIFFERENTIALS

Neonatal

- Benign sleep myoclonus
- Jitteriness
- Hyperekplexia
- Dystonia
- Cardiac causes/arrhythmia/ structural
- GERD v's (GORD)

Infants/early childhood

- Febrile seizures
- Breath-holding spells
- Shuddering
- Reflex anoxic seizures
- Night terrors
- Stereotypies/behavioural
- Alternating hemiplegia of childhood
- Night terrors/sleep-awake disturbance

Childhood/Teenage

- Migraine
- Non-epileptic event
- Episodic ataxia
- Movement disorder

Any Age

- Cardiac cause/arrhythmia
- Syncope
- Vasovagal syncope
- Space occupying lesion
- Drugs/alcohol

HISTORY

History is key in the diagnosis

- What was child doing before, during and after the event?
- Video available to review

HISTORY Continued

Description of the episode

- Awareness or loss of awareness
- Could it be interrupted?
- Level of consciousness
- Limb movement
- Stiffening bilateral/ unilateral
- Eye rolling/deviation
- Incontinence
- Tongue biting
- Colour change
- Duration
- How long to full recovery?
- Was there a trigger or a warning?
- Ask about other episodes if presenting with first GTC – myoclonic jerks, absences, morning clumsiness

Other key points

- Developmental concerns
- Difficulties at school
- Family history
- Drugs/alcohol

EXAMINATION

- Centiles
- Head circumference
- Full neurological exam including fundoscopy
- Skin examination for neurocutaneous stigmata
- Vital signs including BP (lying and standing if suspicious for syncope)
- Developmental exam
- Perform hyperventilation1-2 minutes if absence seizures suspected

INVESTIGATIONS

- Blood sugar
- Electrolytes, calcium and VBG (not needed in all cases)
- 12-lead ECG (calculate QTc) if convulsive seizure or collapse
- EEG
- MRI (see below)

When to consider EEG

- To support a diagnosis of epilepsy when the clinical history is suggestive of an epileptic event
- Recurrent afebrile/unprovoked seizures
- Certain epilepsy syndromes (for example juvenile myoclonic epilepsy even after a single GTC seizure)
- EEG should NOT be performed to exclude a diagnosis of epilepsy when the clinical history suggests a non-epileptic event

TREATMENT

- Anti-seizure medication is usually started after the second unprovoked seizure
- Rescue medications (rectal diazepam/ buccal midazolam) can be prescribed. Only licensed for one dose in the community setting. Second dose if paramedic or medical support available.
- Family need a rescue medication demonstration and instruction, advise of risks.

FEBRILE SEIZURES

- Affect 2-5 % of children aged 6 months – 5 years
- Seizure associated with a fever (> 38°C)
- **Simple:**
  - Lasting < 15 mins
  - No focal features
  - No development or neurological
- **Complex**
  - Lasting > 15 mins
  - Focal features
  - Recur within 24 hours
- No investigations required if simple febrile seizures and child returns to baseline
- Increased risk of recurrence if:
  - First seizure before 12 months
  - Complex first seizure
  - Family history
- Increased risk (up to 10%) of subsequent epilepsy if:
  - Family history of epilepsy
  - Prolonged/focal seizure
  - Febrile status epilepticus
  - Neurodevelopmental concerns
- Parental education important
- Rectal diazepam/buccal midazolam can be used at onset if history of prolonged febrile seizures
- Anti-pyretic medication (PR if needed)

INDICATIONS FOR MRI

- Abnormal or focal neurological exam
  - Focal seizures
  - Refractory epilepsy
- Neonatal or infant onset epilepsy

Ref: Paroxysmal events 05/23

REFERENCES:

- NICE Guidelines (CG137) May 2021: The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care
- RCH Clinical Practice Guidelines Aug 2020: Afebrile seizures
- RCH Clinical Practice Guidelines Dec 2020: Febrile seizures
- NZCYCN National Guidelines (November 2021) Epilepsy - guidelines and pathways for children and young people
- Wirrell E. Evaluation of First Seizure and Newly Diagnosed Epilepsy. Continuum (Minneap Minn). 2022;28(2):230-260.