

# FEBRILE SEIZURES

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# What are Febrile Seizures?

- **Seizure events**

- In neurologically healthy infants and children
- Age between 3 months to 6 years (6mos-5yrs in some literature)
- With fever  $> 38\text{ C}$
- No intracranial infection
- No other definable cause
- No prior history of afebrile seizures

# Incidence and Types

- **Incidence**

- 2-5% of all children

- **Types**

- Simple
- Complex
- **Febrile myoclonus**
- **Febrile status epilepticus**
- **Febrile seizure plus**

*Knudsen FU, Epilepsia 2000*

*Subcommittee on febrile seizures, AAP, Pediatrics, 2011*

# Simple Febrile Seizures

- **Generalized seizures (tonic, clonic, tonic-clonic, rarely atonic)**
- **Duration < 15 minutes**
- **Not recurring within 24 hours**
- **No postictal abnormalities (including Todd's paralysis)**

# Complex Febrile Seizures

- Also called complicated
- Focal features
- Prolonged duration (>15 minute)
- Recurrent within 24 hours
- Associated with postictal neurologic abnormalities (including Todd's paralysis)

*Knudsen FU. Epilepsia 2000*

# Febrile Myoclonus

- Seizure type is myoclonus
- Usually associated with a family history of febrile seizures

*Seizures in Children, A Guide to Management, 5<sup>th</sup> edition, 2014*

# Febrile Status Epilepticus

- **Seizure duration > 30 minutes**
- **Series of short seizures without regaining consciousness interictally lasting 30 minutes or longer.**
- **Most seizures are convulsive and partial or have focal features.**

# Febrile Seizure Plus

- Refers to syndromes associated with:
  - Children who have febrile or afebrile seizures
  - Children who remain to have persistent febrile seizures beyond 7years of age

*Seizures in Children, A Guide to Management, 5<sup>th</sup> edition, 2014*



# Short term outcome

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- **Excellent**
- **Only adverse outcome – recurrent febrile seizures**

*Knudsen FU. Brain and Development 1996*

# Evaluation of a Child with 1<sup>st</sup> Febrile Seizure – Lumbar Puncture (CNSP CPG)

- **CSF analysis is not the test that confirms the diagnosis of febrile seizure per se**
- **CSF analysis is the gold standard for the alternative diagnosis of meningitis**
- **AGE plays a crucial role in decision to do lumbar puncture**

# Evaluation of a Child with 1<sup>st</sup> Febrile Seizure (CNSP CPG)

- **Lumbar Puncture**
  - **Infants < 18 months – LP must be strongly considered**
  - **Age > 18 months – LP is not routinely warranted, but should be done if meningeal signs are present**

# Evaluation of a Child with 1<sup>st</sup> Febrile Seizures (CNSP CPG)

- **EEG**

- Not recommended as a routine after 1<sup>st</sup> febrile seizure
- No published study which shows that EEG can predict future epilepsy

- **Blood studies**

- Not performed routinely
- Done depending on clinical evaluation

- **Neuroimaging**

- Not recommended routinely after 1<sup>st</sup> febrile seizure

# Acute/Immediate Treatment of Febrile Seizures

- **To stop ongoing seizure**
  - Drug of choice – IV benzodiazepines
  - Alternative – Rectal diazepam
    - Safe, effective, easy to use
    - Rapid absorption, plasma levels in 2-4 minutes
  - Others
    - Rectal Lorazepam
    - Nasal Midazolam
    - Buccal Midazolam
  - Antipyretics – Help to make child more comfortable

# Acute/Immediate Treatment of Febrile Seizures – Use of ADE's

**The use of continuous anticonvulsants is not recommended in children after the first simple febrile seizure. Although anticonvulsants can reduce the recurrence of febrile seizures, the adverse side effects of these drugs do not warrant their use in this benign disorder. – CNSP CPG**

# Short term Intermittent Prophylaxis

- **Intermittent Diazepam during fever**
  - Can reduce recurrence by one third (provided doses are optimal and compliance is ensured)

*Knudsen FU. Arch Dis Child 1985*

# Short term Intermittent Prophylaxis

- **Suggested dose of diazepam**
  - 0.5mg/kg given orally or rectally every 12 hours if rectal temp. > 38.5 C  
Maximum of 4 consecutive doses to avoid accumulation.
  - Adverse effects:  
Lethargy, drowsiness, ataxia
  - Duration of prophylaxis  
12-18 months after last seizure



