Febrile seizures in children: a condensed update

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To the Editor—We would like to provide a condensed update on febrile seizures in children.

Febrile seizures are the most common type of provoked seizure in children. The cumulative risk varies in different cohorts but is generally reported from 2% to 5%.1 The typical febrile seizure is a generalised short seizure provoked by a febrile episode in children aged 6 months to 6 years. The duration is shorter than 15 minutes and usually does not recur in the same episode. There are typically no focal neurological deficits or signs of central nervous system (CNS) infection.2 Acute management of convulsive seizures, such as resuscitation and first-aid measures, should follow the local prevailing guideline provided by the Hospital Authority intranet.

Diagnosing typical febrile seizure is clinically important and can follow a simple management pathway (Fig). The chance of CNS infection and long-term neurodevelopmental sequelae is low. There is no significant difference in academic performance and behaviour at age 10 years for children who had a typical or atypical febrile seizure compared with control.3 Further tests are necessary for fever rather than the seizures themselves.

Lumbar puncture to exclude CNS infection is unnecessary even in infants aged <1 year with simple febrile seizures. It should be considered in complex febrile seizures, prolonged seizures, or presence of red flag signs such as meningism, bulging fontanelle, or focal neurological deficit.

Urgent neuroimaging, such as computer tomography or magnetic resonance imaging, should be considered only in prolonged seizures, presence of focal neurological deficits, or prolonged encephalopathic state.

Electroencephalography is of limited value even in complex febrile seizures. It might be considered in focal seizures, presence of focal deficit, persistent alteration of consciousness after seizure (to rule out subclinical or electrographic status epilepticus), or developmental delay.

Counselling is the most important aspect in managing febrile seizures:
1. Prognosis: excellent prognosis for typical febrile seizure; no significant increase in future epilepsy or other neurodevelopmental sequelae for typical febrile seizure even if recurrent; higher risk of sequelae in the presence of atypical features.4
2. Recurrence risk: on average 30% before 6 years old, higher if first attack at a younger age or in the presence of atypical features.
3. Antipyretics are not recommended for febrile seizure prophylaxis.
4. Long-term or intermittent anticonvulsants are useful to reduce recurrence but in general not recommended because of their side-effects.
5. Rescue medication, eg, rectal diazepam should be considered for prolonged febrile seizure, febrile status epilepticus, or patients with limited medical access.
6. Intermittent oral benzodiazepines could be considered for recurrent febrile seizures which are likely predictable, ie, seizures occurred after detection of fever.
7. Caregivers should be taught to manage acute seizures.

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References

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To assess the risk of CNS infection:
- History: >3 days of illness, drowsiness or vomiting at home, pretreated with antibiotics
- Physical signs: Petechial rash, neck rigidity, drowsiness, convulsing on examination, focal deficits, head and neck infections with intracranial extension potential, eg, mastoiditis/sinusitis, bulging fontanelle
- Atypical febrile seizures: Focal seizures, seizure duration >15 min, multiple seizures in 24 hours
- CNS infection less likely: Previous febrile seizure, pre-existing neurology

Evaluate for CNS infection and the need for neuroimaging/EEG:
- Consider CT/MRI if concern of raised intracranial pressure
- Lumbar puncture if no contra-indication
- Sepsis screen, blood electrolytes, glucose
- Empirical antimicrobial treatment
- Consider EEG if focal seizures, presence of focal deficit; persistent alteration of consciousness after seizure to rule out subclinical or electrographic status epilepticus or developmental delay

Consider non-urgent follow-up, EEG/MRI for complex febrile seizure and:
- Family history of epilepsy
- Previous traumatic brain injury or CNS infection
- History of status epilepticus
- Baseline neurodevelopmental problem
- Evidence of neurocutaneous syndrome

Discharge criteria:
- Patients’ condition normalised
- Parental anxiety addressed and education provided with pamphlet
- Appropriate follow-up is arranged

Abbreviations: CNS = central nervous system; CT = computed tomography; EEG = electroencephalography; MRI = magnetic resonance imaging

FIG. Simple management pathway for febrile seizures