

25th Annual University of Toronto
Update in Emergency Medicine
February 19-22, 2012

Emergency Management of Children with:
Hot Seizures, Cold Seizures and
Status Epilepticus

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Disclaimer

I have no actual or potential conflict of interest to declare.

The photographs and information presented were selected from my teaching files, the Hospital for Sick Children library and downloaded from the internet.

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Learning Objectives

On completion of this workshop participants will have critically reviewed a variety of clinical scenarios and recent literature and:

1. Understand why detailed history taking and meticulous serial examinations are essential for accurate diagnosis and safe, effective management of children with seizures.
2. Be prepared to review their Emergency Protocols for the management of children who present with seizures in order to avoid common complications of therapy.
3. Appreciate the need for rapid interventions to limit the duration of status epilepticus.

Emergency Approach to Seizures

1. Seizures with fever
2. Seizures without fever
3. Non Seizures (Differential Diagnosis)
4. Status Epilepticus

Other important considerations:

- *Does child have epilepsy?*
- *Child's nutritional status?*
- *Are there other underlying chronic health issues?*
- *Local geographic, psychosocial, legal issues?*

Definitions

- Seizures are sudden changes in function or behaviour that result from discharge of neurons.
- Generalized seizures imply involvement of both cortical hemispheres and loss of consciousness.
- Partial Seizures imply involvement of part of the brain without loss of consciousness.
- Epilepsy is the occurrence of two or more unprovoked seizures.

Patient A - 18 month old boy

- "A" described as "fussy" before bed time
- 2 hours after going to sleep parents heard a noise and find "A" unresponsive, generalized tonic clonic seizure activity observed for 5 minutes, then he was quiet and drowsy
- In emergency 1 hour later "A" is alert and "well" temp 40°C rectally, no other abnormality on head to toe examination
this is his first seizure

*Does child "A" need any investigations?
Do you need any more history to make a decision?*

Do

Patient B - 18 month old boy

- "B" has a 2 minute generalized seizure with full recovery in 5 minutes at home
2 previous febrile seizures
- In emergency temp 39°C no other findings after your examination "B" has a 3 minute generalized tonic clonic seizure with full recovery in 5 minutes

*What is your approach to child "B"?
Should his care differ from that given to child "A"?*

Patient C – 20 month old girl

- "C" has coryza, cough and low grade fever for 3 days
- Seen at a walk-in clinic "has red ears" R_x antibiotic
- 24 hours after starting antibiotic (during naptime at daycare) has a 1 minute generalized tonic clonic seizure
- 30 minutes later in hospital irritable and crying - other than coryza no focal findings

*Is this a simple febrile seizure?
What is your management plan?*

Patient D – 6 week old boy

- 2 minutes right leg "shaking" during sleep
- pale and difficult to awaken – 911 called
- EMS report - "looks well but feels warm"
- in hospital 30 minutes later temp 38°C and appears well, no focal findings

What is your approach?

Patient E – 12 year old girl

- Brought by ambulance from school after a seizure
- EMS found her drowsy and combative when first assessed, now quiet and responding appropriately
- At triage afebrile, all vital signs within normal limits, no obvious injuries to head and neck and nurses report "she looks stable"

*How urgently should she be evaluated?
What is your approach to investigations?
What are key history details and examination clues?*

Patient F – 30 month old boy

- during afternoon nap mother noted shaking of right leg and arm, progressing to generalized seizure activity – 911 called
- 10 minutes later EMS find boy unresponsive with tonic, clonic seizure activity and poor air entry
R_x rectal diazepam + bagging
- seizure activity stops in 5 minutes then recurs
R_x 2nd dose diazepam given by intraosseous
- at hospital apnoeic and unresponsive

What is your approach?

Summary

- Seizures are one of the commonest paediatric emergencies managed by Emergency Specialists.
- Accurate diagnosis and good outcomes are dependent on attention to meticulous history taking and detailed serial examinations.
- Local health, nutritional, geographic/political and population demographics should all inform seizure management in the Emergency Department.