Epilepsy in Children: An Overview of Diagnosis & Management

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Disclosures

• No conflicts of interest or financial disclosures.
• Disclosure statement: This presentation discusses the off-label use of medications.

Learning Objectives

• Define childhood epilepsy.
• Describe three types of diagnostic evaluations for the childhood epilepsy patient.
• Compare basic types of seizures based on semiology.
• Identify three pharmacologic and three non-pharmacologic treatment options for childhood epilepsy.
• Describe three methods that can be utilized to improve the experience of families of children with epilepsy.

What is Epilepsy?

• What percentage of epilepsy cases are believed to be of genetic etiology?
  A. 0-20%
  B. 20-40%
  C. 40-60%
  D. 60-80%

Types of Seizures
Question Two

- Neuroimaging is a recommended part of the diagnostic evaluation for all first-time unprovoked seizures.
  A. True  
  B. False

Diagnostic Evaluation

- Electroencephalogram (EEG)  
  - Routine  
  - Long-Term Monitoring
- Magnetic Resonance Imaging (MRI)
- Physical Examination  
  - Hyperventilation for staring spells  
  - Focal findings
- Medication Trial

Pharmacologic Management

- Maintenance Medication  
  - Prevent seizures  
  - Goal = No seizures + No side effects  
  - First line treatment for most  
  - Compliance is key
- Rescue Medication  
  - Emergency Management  
  - Stop prolonged seizure or cluster  
  - Prescribing parameters  
  - Consider side effects and route

Common Maintenance Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Typical Use</th>
<th>Common Side Effects</th>
<th>Rare Severe Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levetiracetam</td>
<td>Partial, Generalized</td>
<td>Depression, irritability, aggression, headache</td>
<td>N/A</td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>Partial, Generalized</td>
<td>Headache, nausea, diaphoresis</td>
<td>Severe Stevens-Johnson Syndrome ( Rash)</td>
</tr>
<tr>
<td>Topiramate</td>
<td>Partial, Generalized</td>
<td>Cognitive slowing, paresthesia, decreased appetite and weight loss</td>
<td>Renal stones, metabolic acidosis, hyperammonemia</td>
</tr>
<tr>
<td>Oxcarbazepine</td>
<td>Partial</td>
<td>Nausea, headache, dizziness, drowsiness</td>
<td>N/A</td>
</tr>
<tr>
<td>Valproic Acid</td>
<td>Partial, Generalized</td>
<td>Tremor, weight gain, clumsiness, memory loss, liver or renal disease</td>
<td>Liver toxicity, pancreatitis, hyperammonemia, hyperuricemia, rash</td>
</tr>
<tr>
<td>Ethosuximide</td>
<td>Childhood Absence Epilepsy</td>
<td>Nausea, abdominal pain, dizziness</td>
<td>Rare severe suppression, rash</td>
</tr>
</tbody>
</table>

Question Three

- When should non-pharmacologic interventions typically be considered for children with epilepsy?
  A. After the first maintenance medication is failed
  B. After two failed maintenance medications
  C. After most maintenance medications have failed
  D. At any point during treatment

Non-pharmacologic Management

- Ketogenic Diet
- Vagus Nerve Stimulator
- Epilepsy Surgery  
  - Resection
  - Disruption
Family Experience

- Experience is individualized
- Emotions will vary dependent upon a variety of factors
  - Fear
  - Uncertainty
  - Stress
  - Anxiety
- Can disrupt normal life patterns & relationships

Family/Child Support

- Open & honest communication
  - Listen
- Identify support structure
- Family support interventions
  - Support groups/support organizations
  - Social support
  - Counseling referral
- Education
  - Disease specific
  - Coping with epilepsy and co-morbidities

References