

Epilepsy

1. Know the International Classification System used for classification of common forms of seizures. Be able to distinguish among generalized convulsive, generalized non-convulsive, partial complex, partial simple and partial seizures w/ secondary generalization

1. Generalized

a. tonic-clonic (grand mal) - LOC, w/o aura, initial tonic phase (extension of extremities and arching of body, -1 0-30 secs, cry/moan, tongue trauma, fall to ground), then clonic. phase (alternating muscle contraction and relaxation, 30-60 secs, mouth may froth, cease w/ flaccid body, may get urinary incontinence), recovery (regain consciousness, postictal confusion, full orientation takes 10-30 mins, transient unilateral weakness during postictal = Todd's paralysis), Status epilepticus (seizures that continue for >30 mins without stopping or failure to regain full consciousness between episodes, medical emergency!)

b. absence (petit mal) - present in childhood usually resolve by adolescence, brief (5-10 sec) LOC w/o loss of postural tone, full orientation following seizure, impaired school performance, EEG shows characteristic 3 1/2 spike-wave pattern

c. Other (tonic, clonic, myoclonic) - (1) tonic - continued limb contraction, may cause drop attacks, LOC (2) clonic - repetitive clonic jerking, LOC (3) myoclonic - sudden, brief, shocklike contractions, may localize to one set muscles. (4) atonic -loss postural tone, then myoclonic jerking, lead to fall or drop attacks

2. Partial

a. simple partial- begin w/ either motor, sensory or autonomic phenomena, may spread to surrounding areas (Jacksonian march), consciousness preserved unless discharge spreads to other areas (secondary generalized)

b. complex partial (temporal lobe, psychomotor) - consciousness, responsiveness, or memory are impaired, discharge starts in temporal lobe or medial frontal lobe, may have aura (epigastric sensation, fear, deja vu, sensory), average seizure last

1-3 min, motor manifestations = coordinated involuntary activity (automatism) c. Partial w/ secondary generalization

2. Be able to differentiate between seizures and syncope

Seizure = excessive or over-synchronized discharges of cerebral neurons

Syncope = LOC due to reduced blood supply to cerebral hemispheres or brainstem, can be result of pan cerebral hypoperfusion or from selective hypoperfusion of brainstem (vertebrobasilar ischemia).

3. Know the general approach to the evaluation and treatment of status epilepticus

Early management - maintain airway, prevent aspiration; check vitals (BP-HTN encephalopathy or shock; temp - exclude hyperthermia; pulse- exclude arrhythmia); check blood levels of glucose, Ca, electrolytes, hepatic/renal function, CBC, sed rate, and toxicology; Give glucose (50ml50% dextrose); if

fever/meningeal signs present do LP (look for postictal pleocytosis and for possible meningitis)

Drug treatment - start immediately, (a) lorazepam 0.1 mg/kg IV - fast acting, will need maintenance drug also. (b) forphenytoin or phenytoin - 20 mg/kg, peak concentration within 10-20 minutes, effective for maintenance. (c) if seizures persist: phenobarbital- 20 mg/kg, used for maintenance, can cause respiratory depression and hypotension at high doses. (d) if seizures continue: general anesthesia (propofol, pentobarbital, midazolam) intubation and ventilatory support required.

Management of hyperthermia - metabolic consequences of status = hyperthermia, lactic acidosis, blood leukocytosis. Severe hyperthermia requires cooling blanket and if necessary induction of motor paralysis

4. Know the common causes of seizures as related to age group

Children - 67.6% idiopathic/cryptogenic, 20% congenital, 4.7% trauma, 4% infection, 1.5% vascular, 1.5% neoplastic

Adults- 55.2% idiopathic/cryptogenic, 15.5% vascular, 10.5% neoplastic, 9.9% trauma, 3.3% congenital, 3.3% degenerative, 2.2% infection

5. Be able to characterize alcoholic withdrawal seizures

Occur w/in 48 hrs of cessation or reduction of EtOH intake, brief flurries of 1-6 attacks that resolve w/in 12 hrs, tonic-clonic seizures.

6. Appreciate the various types of behavior and movements that occur during complex partial seizures

Also known as temporal lobe or psychomotor seizures, have impaired consciousness, responsiveness or memory, usually arise from temporal lobe or medial frontal lobe. May begin w/ aura, such as epigastric sensations, can also be affective (fear), cognitive (deja vu), and sensory (olfactory hallucinations), then consciousness is impaired. Seizures average about 1-3 minutes. Motor manifestations are coordinated involuntary motor activity called automatism. Usually orobuccolingual movements, or other facial/neck movements. May secondarily generalize.

7. Be able to differentiate between ictal and post-ictal state

Post-ictal = period of confusion, disorientation, or agitation following generalized tonic clonic seizures. Period of confusion usually brief (few minutes), may not be recalled by patient.

8. Appreciate the concept of a post-ictal (i.e. Todd's) paralysis and similar deficits

Todd's paralysis = postictal state, w/ focal neurologic deficits such as hemiparesis that resolves over period of 1/2-36 hrs, suggestive of underlying focal brain lesion.

9. Appreciate the significance of focal onset vs. generalized onset seizures

10. Know the routine evaluation of new onset seizures