

EPILEPSY & SPELLS

EPILEPSY:

A chronic disorder of the cerebral cortex characterized by recurrent, unprovoked seizures.

SEIZURE:

An alteration of consciousness, sensation, and/or behavior caused by a hypersynchronous discharge in the cerebral cortex.

TYPES OF EPILEPSY:

1. idiopathic (presumed genetic)
2. symptomatic (presumed to be due to a structural abnormality even if one cannot be found (in which case is called cryptogenic))
3. localization related
4. generalized

TYPES OF SEIZURES:

1. simple partial (no alteration of consciousness) auras are simple partial seizures.
2. complex partial seizures (alteration but not complete loss of consciousness)
3. generalized seizures (tonic-clonic, absence, myoclonic, tonic, atonic)

STATUS EPILEPTICUS:

A partial or generalized seizure lasting more than 20 minutes or recurrent seizures without full recovery of consciousness. Practically, any seizure lasting more than five minutes should be treated as status.

MANAGEMENT OF PATIENTS WITH EPILEPSY:

STATUS EPILEPTICUS -

1. lorazepam 0.1mg/Kg IV
2. fosphenytoin 20 pe/Kg IV
3. repeat fosphenytoin 10 pe/Kg IV
4. intubate
5. phenobarbital 20 mg/Kg IV, then repeat 10 mg/Kg IV
or
pentobarbital 5 mg/Kg IV, then 1.5 mg/Kg/hr and titrate up
or
midazolam 0.2 mg/Kg IV, then 0.1 mg/Kg/hr and titrate up
or
propofol 2 mg/Kg IV, then 1 mg/Kg/hr and titrate up
or
valproate 25 mg/Kg IV, then repeat 25mg 1Kg

OUT-PATIENTS -

1. seizure precautions no driving (Louisiana law states that patients must be seizure free for six months before they can drive. There is no requirement for physicians to notify DMV.), no high places, no swimming alone, baths not showers, use back burners of the stove). DOCUMENT WELL.
2. Teratogenicity-folate 2 mg/day in all women of child bearing age on ACD's
3. contraception: enzyme-inducing drugs lower the effectiveness of BCP's.
USE BARRIER METHOD.
4. evaluation-every patient with a first seizure or new-onset epilepsy should have an MRI and an EEG including sleep.
5. warn patients of potential serious side-effects.
6. five half-lives are required to reach steady state.
7. blood levels-treat the patient, not the level.

TREATMENT -

1. Anti-convulsants - all anti-convulsants (except gabapentin and topiramate) can cause serious side effects such as Steven-Johnson Syndrome, liver failure, and hematologic disorders.
 - a. phenobarbital - effective, narrow-spectrum, and cheap, but lots of side effects.
 - b. phenytoin (Dilantin)-effective, narrow-spectrum, generic is relatively cheap, causes gingival hyperplasia and hirsutism.
 - c. carbamazepine (Tegretol)-effective, narrow spectrum, generic moderately priced, caused leukopenia, SIADH in the elderly.
 - d. valproate (Depakote)-effective, broad-spectrum, generic is cheap, trade name is moderately expensive, causes hair loss, weight gain, tremor, and polycystic ovary disease.
 - e. gabapentin (Neurontin)-effective (may need high doses), narrow spectrum, moderately expensive, causes fewer side effects, cleared by the kidney.
 - f. Lamotrigine (Lamictal)-effective, broad-spectrum, expensive, Steven-Johnson Syndrome must increase dose very slowly.
 - g. topiramate (Topamax)-effective, broad-spectrum, expensive, may have more severe cognitive slowing.
 - h. tiagabine (Gabatril)-effective, narrow-spectrum, expensive, may have less side effects.
 - i. levetiracetam (Keppra)-effective, broad spectrum, expensive, unique mechanism of action (unknown), less side effects.
 - j. zonisamide (zonegran)-effective, broad spectrum, expensive, kidney stones.
 - k. oxcarbazepine (Trileptal) - effective, narrow spectrum, expensive, good side-effect profile
2. Vagus Nerve Stimulator - effective, narrow spectrum, expensive, requires surgical implantation, no cognitive side effects.
3. Epilepsy Surgery - very effective, only "cure" for epilepsy, extremely expensive, potential surgical morbidity and mortality. Requires in-patient monitoring, sometimes including invasive monitoring.

SPELLS:

Physiologic - see dizziness and syncope handout.

Psychogenic -15% of outpatients, 30% patients hospitalized for video/telemetry, and 50% of patients in status epilepticus have pseudo-seizures.

Pseudo-seizure red flags: no response to anti-convulsants, very prolonged seizures, and history of prior conversion symptoms.

Video/EEG telemetry monitoring best makes diagnosis.