

Seizure Guideline

AIM

To provide an evidence-based, safe, standardized approach to the progressive management of Adult Generalized Seizures. This Guideline also provides information on how and when to refer patients to the First Seizure Clinic, and provides the user with a Seizure Advice Sheet to be given to the patient prior to discharge.

INCLUSION CRITERIA

Any adult patient presenting to ED with a Generalized Convulsive Seizure

EXCLUSION CRITERIA

- Pregnancy (Eclampsia)
- Age < 16yrs
- Toxicology
- Head Injury / Trauma

CAUSE OF SEIZURES

Seizures can be due to a primary seizure disorder (epilepsy), but there are numerous other causes. History, examination and investigation should occur in parallel with treatment for control of seizure.

Structural lesions

- Vascular lesion (aneurysm, AVM)
- Mass lesion (benign or malignant tumour)
- Traumatic brain lesion (including intraparenchymal, SAH, SDH or EDH)
- Neurodegenerative diseases
- Congenital abnormalities

Infection

- Meningitis
- Encephalitis
- Brain abscess

Metabolic disturbances

- Hypoxia
- Glucose / Calcium / Sodium / Magnesium
- Hyperosmolar states
- Renal or liver failure

Drugs and toxins

- Cocaine, amphetamines and other sympathomimetics
- Propanolol
- Phencyclidine/LSD
- Tricyclic antidepressants
- Theophylline
- Salicylates
- Antibiotics (penicillins)
- Lithium
- Antihistamines, anticholinergic agents, antipsychotics
- Alcohol or benzodiazepine withdrawal
- Cyanide/carbon monoxide
- Strychnine, camphor, chlorinated hydrocarbons, organophosphate insecticides
- Local anesthetics - lidocaine, bupivacaine, procaine
- General anesthetics - methohexital, ketamine, etomidate
- Hypo-osmolar parenteral solutions

Miscellaneous

- Hypertensive encephalopathy
- Eclampsia
- Cerebral venous sinus thrombosis
- Dialysis dysequilibrium syndrome
- Vasculitis, TTP, porphyria, sickle cell disease, syphilis

COMPLICATIONS OF STATUS EPILEPTICUS

- **Systemic effects** - hyperpyrexia, hyper/hypotension, cardiac arrhythmias, pulmonary oedema, aspiration pneumonia, lactic acidosis, rhabdomyolysis, hyper/hypoglycemia, leucocytosis, CSF pleocytosis
- **Secondary injuries** – fractures, dislocations, dental + tongue injuries
- **Permanent neurological damage**
- **Death** (mortality 10 - 40%)

PSEUDOSEIZURES

Pseudoseizures can be difficult to differentiate from real seizures (and vice-versa), even to the trained eye. The following signs and manouvers may assist in helping you make your diagnosis

Signs

- Asynchronous head / extremity and pelvic thrusting
- Self-injury and urinary incontinence is NOT a helpful differentiator between seizure and pseudoseizure
- No altered mental state or post-ictal change

Manouvers

- Avoidance to nose swab / hand face drop / corneal stimulation
- Geotrophic eye test (gaze aversion in pseudoseizure)
- Noxious stimulation
- Verbal suggestion
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ADDITIONAL INFORMATION

CT

- A CT should be considered in the ED whenever an acute intracranial process is suspected, head trauma, history of malignancy, immunocompromise, fever, persistent headache, history of anticoagulation or a new focal neurologic examination and age older than 40years.

Antiepileptics

- Patients with a normal neurological examination, no comorbidities, and no known structural brain disease do not need to be started on an antiepileptic drug in the ED

REFERENCES

1. Shearer P, Park D. Seizures And Status Epilepticus: Diagnosis and Management in the Emergency Department. *Emergency Medicine Practice. An evidence-based Approach to Emergency Medicine*. 2006; 8(8): 1-32.
2. Walker M. Status Epilepticus: An evidence-based guide. *BMJ* 2005;331:673-677.
3. Chen et al: *Lancet Neurol* 2006;5:246-56
4. Clinical Policy ACEP: *Ann Emerg Med* 2004;43:605-625

EXPERT OPINION

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