XVI: Seizures

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Specific learning objectives

1. Knowledge.

Subinterns should be able to:

1. Generate a differential diagnosis for seizures including toxic/metabolic, medications, drugs of abuse, and brain diseases
2. Describe the potential consequences of status epilepticus

2. Skills.

Subinterns should demonstrate specific skills, including:

1. Elicit a focused history from patients and observers
2. Conduct a physical examination
3. Rapidly assess a patient who is having a seizure
4. Recognize tonic, clonic, tonic-clonic, and myoclonic movements and tongue or oral mucosal injuries related to seizures
5. Perform a complete neurological examination
6. Develop a patient-specific management plan
7. Generate a patient-specific differential diagnosis
8. Appropriately order and interpret tests
9. Develop a treatment plan for inpatients with seizures
10. Counsel patients about state requirements for limitations on driving following a seizure

3. Attitudes and professional behavior.

Subinterns should demonstrate:

1. Understanding towards patients' concerns about seizure-related limitations on driving or other activities

CASE 1

SCENARIO: You are on call for the general medical team. During dinner you are over-head paged "stat" 6W, a general medical floor. When you arrive on the floor the unit secretary states Mr. Chapman, a patient you are covering, is "having a seizure." When you walk in a nurse, 2 patient aides, a nursing student, 2 third year medical students, and the patient's wife are all crowded into the room looking at the patient. From the door he appears to be shaking uncontrollably. You review your sign-out list, which states:

Chapman 6W: HD#2 for a 60 y.o. admitted for work-up of lung mass with post-obstructive pneumonia. Likely non-small cell carcinoma. DM, HTN. On levofloxacin, hctz, lisinopril, glyburide, sliding scale insulin, wellbutrin, paxil. NDKA. Stable, for discharge tomorrow. Nothing to do.

1) Question: What are your immediate priorities?

2) Question: What is your initial differential diagnosis (bold most likely)?
Exacerbation of previous seizure disorder

3) Question: What specifically will you look for on exam?

4) Question: While you are assessing the patient what orders will you give?

MORE INFORMATION: Your initial exam reveals an elderly appearing man who appears older than his stated age engaged in symmetric tonic-clonic movements but with no signs of impending respiratory distress. His BP is 160/90, HR 110, resp rate 22, temp 38 (100.4). His pulse-ox is 92% on 2L nasal canula. His HEENT exam reveals no head laceration or contusions. His lung exam reveals scattered wheezes and dullness in the right base. His cardiac exam is regular without murmurs, rubs, or gallops. His neurologic exam reveals symmetric tonic-clonic movement. There are no obvious areas of weakness or flaccidity. His extremities are cool but have a capillary refill < 30 secs. Initial EKG rhythm reveals sinus tachycardia. Initial blood glucose is 150. The nurse states he has been seizing for approximately 5 minutes.

5) Question: What is your next immediate priority?

6) Question: What are the dangers of prolonged seizures/status epilepticus?

7) Question: What specific orders will you give now?

8) Question: What specific historical facts do you want to elicit from the chart, patient's wife, and/or nursing staff?

MORE INFO: You order 2 mg of Ativan IV. After a minute his seizure activity stops. His repeat vital signs are BP 150/88, HR 104, RR 24, pulse-ox 96% on 6L O2. There is no previous history of seizures or epilepsy. Review of the chart reveals a history of ethanol use. The wife confirms these details and additionally states that Mr. Chapman is a "heavy drinker." His nurse confirms he has been increasingly agitated and confused all evening. His last dose of insulin was this morning, at which time he got 2 units of regular insulin. He has had no benzodiazepines since admission. He has had no neuro-imaging since admission.

9) Question: What are the most likely diagnoses?

10) Question: Is there a role for other testing at this point?

11) Question: What other medications should be ordered?

MORE INFO: You re-examine the patient. He is lethargic. Your neurologic examination shows equal tone in all 4 extremities, symmetric reflexes, and downward pointing toes. His stat labs reveal: WBC 17 80% segs 10% bands; hgb 13.5 Na 138 K 4.4 Cl 108 HCO 15 BUN 8 Cr .6 glucose 210. LFTS: ALT 50, AST 55, GGT 200, Alk Phos 70, Tbili 1.1, Calcium 9.4, Albumin 3.8, His ABG (on 6L O2) reveals PH 7.32 PAO2 86, PCO2 30 HCO3 15. An urgent Head CT is ordered.

12) Question: Interpret labs

13) Question: What additional monitoring/orders are needed during the post-ictal phase?

14) Question: What do you do if he starts to seize again?

15) Question: What additional measures should you initiate?

References

General Review:

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Treatment

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Manno EM. New management strategies in the treatment of status epilepticus. [Review] [92 refs] *Mayo Clinic Proceedings 2003; 78(4):508-18.*

Three recent reviews of the management of status epilepticus, focusing on emergent treatments.

Laws regarding physician reporting:

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Epilepsy foundation website:
http://www.epilepsyfoundation.org/advocacy/transportation/driverlicensing.cfm