Medical Management of Seizures in the Setting of Vascular Malformations

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Disclosures

• None
• Epileptic seizure - transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain.

• Epilepsy - disorder of the brain characterized by an enduring predisposition to generate epileptic seizures and by the neurobiologic, cognitive, psychological, and social consequences of this condition. The definition of epilepsy requires the occurrence of at least one epileptic seizure. (Two or more unprovoked seizures).

RS Fisher et al. Epilepsia 2005
• Prophylaxis

• Medical treatment of epilepsy
To prophylax or not to prophylax
Case 1

- A 32 year old man presents to your office with new onset headaches. His neurological exam is normal.
• He works as a school bus driver.
• After a detailed history, there is no evidence that he has ever had a seizure.
• Would you prophylax?
• The risk of developing an epileptic seizure after an incidental CVM is low.

• These risks do not appear to support the prescription of prophylactic AEDs.
• 1 year later this same gentleman has a complex partial seizure that secondarily generalizes.
• What now?
After a 1\textsuperscript{st} seizure the 5 year risk of developing epilepsy is 58\% for AVM (without ICH/ FND) and 94\% for CM.
Medical management of epilepsy
Choosing Antiepileptic Drugs

Older Anticonvulsants

Phenobarbital (1912)
Phenytoin (1938)
Carbamazepine (1974)
Valproate (1978)

Newer Anticonvulsants

Gabapentin (1993)
Felbamate (1993)
Lamotrigine (1995)
Topiramate (1997)
Levetiracetam (1999)
Oxcarbazepine (2000)
Zonisamide (2000)
Pregabalin (2005)
Rufinimide (2008)
Lacosamide (2008)
Retigabine (2011)
Clobazam (2012)
• The newer anticonvulsants are no more efficacious than the older anticonvulsants.
• However, newer AEDs have fewer side effects are better tolerated and have fewer medication interactions.

French JA et al Neurology 2004
Case 2

- 29 year old woman with epilepsy and headaches. She has a spastic right hemiparesis and is on LTG and LEV. She was admitted with decreased responsiveness and jerking.

- She is trying to conceive a child
• E:\StudyData\RIVERA~ CARMEN_e9ba456f-9906-4cf9-b6c2-4b03ee9bd67b\RIVERA~ CARMEN_e9ba456f-9906-4cf9-b6c2-4b03ee9bd67b.eeg
What would the next step in management be?

a. Stop all medication.
b. Stop all medication in a monitored setting.
c. Stop LEV. Continue to monitor.
d. Ascertain via history if this is the patient’s only type of event.
e. Discuss NES with the patient.
• LEV and LTG are stopped in the EMU and she has a small left temporal subclinical seizure in sleep.
• What would you do given her desire to conceive?
• Goal – Monotherapy, seizure free prior to pregnancy, know the AED level, supplement with folate.
• Given NES - counseling for events.
• During pregnancy – check AED levels as she will need higher doses of medication to maintain the same drug level.
Case 3

• 51 year old male with a history of a cavernous angioma in the left temporal lobe and seizures.
• A week after his 25th birthday he had a GTCC. After the GTCC he was diagnosed with a cavernous angioma. He never had another GTCC and was treated with CBZ ER.
• He presented with episodes of fear and panic followed by momentary confusion. His family describes him as a “worrier” and “always anxious”.
VEEG

- E:\StudyData\CIZMA~STEVEN_e8589120-cd0f-4800-8d5c-04bf12e6b9cb\CIZMA~STEVEN_e8589120-cd0f-4800-8d5c-04bf12e6b9cb.eeg
• CBZ level is 10
• What is your next choice of AED?
  – Partial seizure
  – Identify co-morbidities
    • Anxiety
    • Obesity

LTG, LEV, GBP, VPA, TPX, ZNG, PB, PHT, PGB, FBM, LCM, OXC
Summary

- Most seizures from cerebral vascular malformations are partial which may or may not secondarily generalize.
- No indication that AED prophylaxis is indicated in persons with incidental vascular malformations.
- In persons with cerebral vascular malformations there is a high risk of developing epilepsy after a single seizure.
- There are no AEDs alone or in combination that have been shown to be superior in treating cerebral vascular malformation.
- The selected drug should be prescribed initially as monotherapy.
- Only when seizures recur despite verified compliance and therapeutic doses is a second agent added.
- AEDs should be chosen on an individual basis, targeted to help or at least not hurt the patient’s comorbidities.
• When medical treatment is provided for patients with vascular malformations who have epilepsy, 40% remain refractory.

Rougier A et al. Neurochirurgie 1989