

Seizures In End Of Life

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Disclosures

- Dr. Stockrahm discloses his employment as
 - Area Medical Director for VistaCare
- VistaCare has provided commercial support for this activity
- Palliative medicine frequently involves the use of medications for “off-label” purposes. Such use may be discussed during this presentation.

Objectives

- ◆ Describe the epidemiology and pathophysiology of seizures seen at the end of life
- ◆ Discuss the management of seizures in this setting
- ◆ Identify medications used to treat seizures, and discuss their use and side effects

Epidemiology

- ◆ 20-40% of patients with brain mets
- ◆ 6 fold increase in patients with dementia
- ◆ Stroke and nonischemic neurologic disease
- ◆ Seizures occur in up to 70% of HIV patients

1. Posner rev. Neurology 148: 477-87
2. Hesdorfer Neurology 46:727-30

Simple Partial Seizure

- ◆ Consciousness not impaired; Usually unilateral hemispheric involvement
 - With motor symptoms
 - With somatosensory symptoms
 - With autonomic symptoms
 - With psychic symptoms

Complex Partial Seizure

- ◆ Impairment of consciousness; Frequently bilateral hemispheric involvement:
 - Beginning as simple partial seizure and progressing to impairment of consciousness
 - With no other features
 - With features as in I
 - With automatisms (aberration of behavior, e.g., Lip smacking, fidgeting with hands)

Complex Partial (Cont.)

- ◆ With impairment of consciousness at onset
 - With no other features
 - With features as in I
 - Partial seizures secondarily generalized

Generalized Seizure (convulsive or non-convulsive)

- ◆ Consciousness always impaired, frequently as first manifestation. Motor manifestations are bilateral:
 - Absence seizures
 - Myoclonic seizures
 - Clonic seizures
 - Tonic seizures
 - Tonic-clonic seizures
 - Atonic seizures

Causes

- ◆ CNS Metastasis - Adult
 - Melanoma
 - Lung
 - Renal
 - Breast

Causes

- ◆ CNS Metastasis - Pediatric
 - ALL
 - Lung Cancer
 - Neuroblastomas

Causes

- ◆ Tumors tendency for seizures
 - Melanoma (Hemorrhagic)
 - Choriocarcinoma (Hemorrhagic)
 - Testis (Hemorrhagic)
 - Oligodendromas
 - LOW Grade Astrocytomas

- Krouwer et al Jour. Pall. Med. (3)2000 465-472

Metabolic abnormalities:

- ◆ Renal failure/insufficiency with electrolyte issues
- ◆ Liver involvement with encephalopathy
- ◆ Pulmonary failure causing hypoxia
- ◆ Hyponatremia (Na<115 meq/L), (Na 115-125 meq/L), (Na>125 - <130 meq/L)

Metabolic abnormalities:

- ◆ Hypoglycemia (FBS < 40 mg/dL)
- ◆ Diabetic patient on oral medications or insulin
- ◆ Hypocalcemia (Ca < 8.5 mg/dl)
- ◆ Hypomagnesemia (Mg < 1 meq/L)

Causes – Drugs:

- ◆ Drug induced causes
 - ◆ History of Methotrexate/Cisplatin/Vincristine/ L-asparaginase/
 - ◆ Imipenem/Cilastin (Primaxin®)
 - ◆ Meperidine (Demerol®)/tramadol (Ultram®)/bupropion (Wellbutrin®)
 - ◆ Clozapine/Chlorpromazine/Maprotiline
 - ◆ Theophylline level > 25 mg/ml
 - ◆ Abrupt discontinuation of barbiturates/benzodiazapines

Causes – Other:

- ◆ Radiation necrosis/leukoencephalopathy
- ◆ History of seizure disorder or preexisting seizure condition
- ◆ Stroke or TIA
- ◆ CNS infection
- ◆ AIDS (HIV positive)

Seizure Complications:

- ◆ Physical injury
- ◆ Vomiting with aspiration
- ◆ Brain Herniation
- ◆ Edema

Status Epilepticus

- Seizure > 5 minutes or 2 or more seizures without recovery of consciousness
- Nonconvulsive Status – 8% of toxic metabolic encephalopathy
- 80% Rx success if treatment initiated within 30 minutes. If treatment delayed over 2 hours drugs fail in 60% of cases
- Lorazepam (Ativan®) is treatment of choice

Oxford Text of Palliative Medicine 3rd ed.

Pharmacology

- Phenytoin (Dilantin®)
 - 4 to 8 mg/kg/day 2 to 3 divided doses
 - Watch drug interactions, Methasone can decrease levels by 50%
 - Rectal administration variable – MBK base suppository recommended 3x oral dose
 - Parental solution absorbed poorly when given rectally
 - Do not perforate capsules – no or little absorption

Pharmacology

- ◆ Lorazepam
 - Rectal 2-4 x the intravenous dosage
 - Sublingual or nasal routes are alternatives but less well studied, and dosing schedules are lacking

Pharmacology

- ◆ Fosphenytoin
 - IV/IM
 - 20 PE/Kg IV up to 150 mg PE/min maintenance
 - 4 – 7 mg PE/Kg/day qd or bid

Pharmacology

- ◆ Diazepam (Valium®)
 - IV
 - Initial – 10mg (2cc) IV slowly push over 5 min.
 - Follow-up May repeat once if needed after 15 min
 - Maximum – 30mg in 8 hours

Pharmacology

- ◆ Diazepam - Rectal (Gel)
- ◆ Weight Dosing
 - < 100 pds. Initial – 10mg PR x 1
 - 100-165 pds. Initial – 15mg PR x 1
 - Over 165 pds. Initial – 20mg PR x 1

Pharmacology

- ◆ Valproic Acid
 - Retention enema
 - 1:1 MBK base rectal suppository
 - Syrup – same as oral dose and frequency 200mg-1200mg every 6 hours
 - Mix with equal volume of tap water

Pharmacology

- ◆ Carbamazepine
 - 2 : 1 MBK base suppository
 - Rectal suspension in small dilute dose 6-8/day

Pharmacology

- ◆ No Data on Rectal Administration
 - Topiramate (Topamax®)
 - Tiagabine (Gabitril®)
 - Levetiracetam (Keppra®)
 - Oxcarbazepine (Trileptal®)

Pharmacology

- ◆ Lamotrigine (Lamictal®)
 - 1 : 1 Rectal suppository
- ◆ Gabapentin (Neurontin)
 - Not absorbed rectally
- ◆ www.pccarx.com

Phenobarbital

- ♦ IV solution can be used rectally 1 : 1
- ♦ If using subcutaneous use 4 –5 x IV /dose

Pearls - Finally

- ♦ Temporal and frontal lobe lesion are most often associated with seizures
- ♦ In a patient with CNS primary or cerebral mets, consider decadron before altering prophylactic seizure regimen, if breakthrough seizures occur.
- ♦ Do not prophylax brain and CNS mets unless seizures have already occurred, unless tumors are high risk, e.g. Melanoma

Krouwer, H. Joun. Of Pall. Med. (3) 2000