

EPILEPSY TEACHING CONFERENCE – SYLLABUS 2007-2008 Academic Year

Conference Held: Every **Monday** Noon (with lunch!)

Format: didactic talks and interactive case presentations/learning issues

1. **Seizure/epilepsy pathophysiology: partial and primary generalized mechanisms**
2. **Clinical epilepsy syndromes**
 - A. **Partial Epilepsy**
 - (1) **Etiologically:**
 - (a) Idiopathic
((1) Prototype: Rolandic Epilepsy
 - (b) Cryptogenic
((1) Prototype: Mesial Temporal Sclerosis
 - (c) Symptomatic
((1) Prototype: Lesional (variety, ie, tumor, AVM, etc....)
 - (2) **Localization-related:**
 - (a) Frontal
 - (b) Temporal
 - (c) Parietal
 - (d) Occipital
 - B. **Primary generalized epilepsy**
 - (1) Idiopathic
 - (2) Symptomatic
3. **Clinical epilepsy pharmacology**
 - A. **Traditional/older AEDs (w/ or w/o newer formulations/analogues)**
 - (1) Phenobarbital/primidone
 - (2) Benzodiazepines (diazepam/diastat, lorazepam, midazolam, etc...)
 - (3) Phenytoin/fosphenytoin
 - (4) Carbamazepine/oxcarbazepine
 - (5) Valproate/depacon
 - B. **Newer/investigational AEDs**
 - (1) Felbamate
 - (2) Gabapentin
 - (3) Lamotrigine
 - (4) Topiramate
 - (5) Tiagabine
 - (6) Zonisamide
 - (7) Levetiracetam
 - (8) Pregabalin
 - (9) Rufinamide
 - (10) Lacosimide
 - (11) Talampanel
 - (12) OMN 369
 - (13) GSK GW273225
4. **Diagnostic Evaluation**
 - A. The art of interictal EEG
 - B. Prolonged video-EEG monitoring
 - C. Invasive recording
 - D. Structural and Functional Neuroimaging (MRI, PET, SPECT, SISCOM, MEG)
5. **Diagnosis and treatment in special situations**
 - A. The first seizure
 - B. Status epilepticus/acute repetitive seizures
 - C. Perioperative seizures/AED prophylaxis
 - D. Non-epilepsy indications for AEDs (i.e., migraine, pain, bipolar/psychiatric disease, etc...)
6. **Options in medically refractory partial epilepsy**
 - A. Epilepsy Surgery
 - B. Electrical Stimulation (Vagus Nerve, Deep Brain, and Cortical Stimulation)
 - C. Dietary therapy (Ketogenic, modified Adkins)
 - D. Neurobehavioral intervention (stress reduction, counselling)
7. **Epilepsy care in special populations**
 - A. Infants/children
 - B. Cognitively maldeveloped/impaired

C. Women

D. Elderly

8.

Research interests

A. Clinical Trials (OMN 369, GSK GW273225)

B. Cognition, Event-related potentials (ERPs) and epilepsy

C. Driving and epilepsy

D. Sleep and epilepsy

Epilepsy Selected References/Bibliography-Fellow Reading List: 2007-2008

Key Historical References

Adie WJ. Pyknolepsy: a form of epilepsy occurring in children with a good prognosis. *Brain* 1924; 47: 96-102.

Gibbs Fa, Lennox WF, Gibbs EL. The electroencephalogram in diagnosis and in localization of epileptic seizures. *Arch Neurol Psychiatry* 1936; 36: 1225-1235.

Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for revised clinical and electroencephalographic classification of epileptic seizures. *Epilepsia* 1981; 22: 489-501.

Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for revised classification of epilepsies and epileptic syndromes. *Epilepsia* 1989; 30: 389-399.

C. EEG/Epilepsy Monitoring

American Electroencephalographic Society. Guidelines in EEG, 1-7 (revised 1985). *J Clin Neurophysiol* 1986; 3: 133-168.

Bleasel A, Kotagal P, Kankirawatana P, et al. Lateralizing value and semiology of ictal limb posturing and version in temporal lobe and extratemporal epilepsy. *Epilepsia* 1997; 38: 168-174.

Gloor P. Neuronal generators and the problem of localization in electroencephalography: application of volume conductor theory of electroencephalography. *J Clin Neurophysiol* 1985; 2: 327-354.

Gloor P. Generalized epilepsy with spike-and-wave discharge: a reinterpretation of its electrographic and clinical manifestations. *Epilepsia* 1979; 20: 571-588.

Gotman J. Automatic recognition of epileptic seizures in the EEG. *Electroencephalogr Clin Neurophysiol* 1982; 54: 530-540.

Gotman J, Ives JR, Gloor P. Automatic recognition of interictal epileptic activity in prolonged EEG recordings. *Electroencephalogr Clin Neurophysiol* 1979; 46: 510-520.

Klass DW, Westmoreland BF. Nonepileptogenic epileptiform electroencephalographic activity. *Ann Neurol* 1985; 18: 627-635.

Knott JR. Further thoughts on polarity, montages, and localization. *J Clin Neurophysiol* 1985; 2: 63-75.

Kotagal P, Luders H, Morris HH, et al. Dystonic posturing in complex partial seizures of temporal lobe origin: a new lateralizing sign. *Neurology* 1989; 39: 196-201.

Lennox WG, Cobb S. Aura in epilepsy: a statistical review of 1359 cases. *Arch Neurol Psychiatry* 1933; 30: 374-387.

Palmini A, Gloor P. The localizing value of auras in partial seizures: a prospective and retrospective study. *Neurology* 1992; 42: 801-808.

Risinger MW, Engel J Jr, Van Ness PC, et al. Ictal localization of temporal lobe seizures with scalp-sphenoidal recordings. *Neurology* 1989; 39: 1288-1293.

Zivin L, Ajmone-Marsan C. Incidence and prognostic significance of epileptiform activity in the EEG of nonepileptic subjects. *Brain* 1969; 91: 751-778.

D. Pediatric Epilepsy/Primary Generalized Epilepsy

Chugani HT, Shields WD, Shewmon DA, et al. Infantile spasms, I: PET identifies focal cortical dysplasia in cryptogenic cases for surgical treatment. *Ann Neurol* 1990; 27: 406-413.

Chugani HT, Shewmon DA, Shields WD, et al. Surgery for intractable infantile spasms: neuroimaging perspectives. *Epilepsia* 1993; 34: 764-771.

Penry JK, Dean JC, Reila AR. Juvenile Myoclonic Epilepsy: long-term response to therapy. *Epilepsia* 1989; 30 (Suppl 4): S19-23.

E. Epidemiology

Annegers JF, Hauser WA, Elveback LR. Remission of seizures and relapse in patients with epilepsy. *Epilepsia* 1979; 20: 729-737.

Annegers JF, Shirts SB, Hauser WA, et al. Risk of recurrence after an initial unprovoked seizure. *Epilepsia* 1986; 27: 43-50.

Ficker DM, So EL, Shen WK, et al. Population-based study of the incidence of sudden unexplained death in epilepsy. *Neurology* 1998; 51: 1270-1274.

Hauser WA, Kurland LT. The incidence of epilepsy in Rochester, Minnesota, 1935-1967. *Epilepsia* 1975; 1:1-66.

Hauser WA, Anderson VE, Loewneson RB, et al. Seizure recurrence after a first unprovoked seizure. *N Engl J Med* 1982; 307: 522-588.

Hauser WA, Annegers JF, Kurland LT. The prevalence of epilepsy in Rochester, Minnesota, 1940-1980. *Epilepsia* 1991; 32: 429-445.

Hauser WA, Annegers JF, Kurland LT. Incidence of epilepsy and unprovoked seizures in Rochester, Minnesota, 1935-1984. *Epilepsia* 1994; 34: 453-468.

Hauser WA, Rich SS, Lee JR, et al. Risk of recurrent seizures after two unprovoked seizures. *N Engl J Med* 1998; 338(7): 429-34

Lennox WG. Heredity of epilepsy as told by relatives and twins. *JAMA* 1951; 146: 529-536.

F. Pivotal Clinical Trials

First Seizure Trial Group. Randomized clinical trial on the efficacy of antiepileptic drugs in reducing the risk of relapse after a first unprovoked tonic-clonic seizure. *Neurology* 1993; 43: 478-482.

Mattson RH, Cramer JA, Collins JF, et al. Comparison of carbamazepine, phenobarbital, phenytoin, and primidone in partial and secondarily generalized tonic-clonic seizures. *N Engl J Med* 1985; 313: 145-151.

Mattson RH, Cramer JA, Collins JF, et al. A comparison of valproate with carbamazepine for the treatment of complex partial seizures and secondarily generalized tonic-clonic seizures. *N Engl J Med* 1992; 327: 765-771.

Medical Research Council Antiepileptic Drug Withdrawal Study Group. Randomized study of antiepileptic drug withdrawal in patients with remission. *Lancet* 1991; 337: 1175-1180.

Medical Research Council Antiepileptic Drug Withdrawal Study Group. Prognostic index for recurrence of seizures after remission of epilepsy. *BMJ* 1993; 306: 1374-1378.

G. Acute Seizures/Status

Bleck TP. Management approaches to prolonged seizures and status epilepticus. *Epilepsia* 1999; 40: S59-63.

Kumar A, Bleck TP. Intravenous midazolam for the treatment of refractory status epilepticus. *Crit Care Med* 1992; 20: 483-488.

Lowenstein DH, Bleck T, Macdonald RL. It's time to revise the definition of status epilepticus. *Epilepsia* 1999; 40:120-122.

O'Brien TJ, Cascino GD, So EL, et al. Incidence and clinical consequence of the purple glove syndrome in patients receiving intravenous phenytoin. *Neurology* 1998; 51: 1034-1039.

Towne AR, Pellock JM, Ko D, et al. Determinants of mortality in status epilepticus. *Epilepsia* 1994; 35: 27-34.

Treiman DM, Walton NY, Kendrick C. A progressive sequence of electroencephalographic changes during generalized convulsive status epilepticus. *Epilepsy Res* 1990; 5: 49-60.

Treiman DM, Meyers PD, Walton NY. A comparison of four treatments for generalized convulsive status epilepticus. *N Engl J Med* 1998; 339: 792-798.

H. Psychosocial/Driving

Fisher RS, Paronage M, Beaussart M, et al. Epilepsy and driving: an international perspective. *Epilepsia* 1994; 35: 675-684.

Gastaut J, Zifkin B. The risk of automobile accidents with seizures occurring while driving: relation to seizure type. *Neurology* 1987; 37: 1613-1616.
Hansotia P, Broste SK. Epilepsy and traffic safety. *Epilepsia* 1993; 34: 852-858.
Hansotia P, Broste SK. The effect of epilepsy or diabetes mellitus on the risk of automobile accidents. *N Engl J Med* 1991; 324: 22-26.

I. Textbooks

Daly DD, Pedley TA. *The Clinical Practice of Clinical Electroencephalography.* New York: Raven; 1990.
Engel J, Pedley T, eds. *Epilepsy: A Comprehensive Textbook.* Philadelphia, PA: Lippincott-Raven; 1997.
Fisch BJ. *Spehlman's EEG Primer.* Amsterdam: Elsevier; Ca. 1991.
Lennox WG, Lennox MA. *Epilepsy and related disorders.* London: Churchill; 1960.
Luders H, Noachtar S. *Atlas and Classification of Electroencephalography.* Philadelphia, PA: WB Saunders; 1999.
Luders H, Noachtar S. *Atlas of Epileptic Seizures and Syndromes.* Saunders, Philadelphia, PA: WB Saunders, 2001.
Niedermayer E, Lopez de Silva FH, eds. *Electroencephalography: Basic Principles, Clinical Applications, and Related Fields.* 3rd Edition. Baltimore, MD: Urban-Schwarzenberg; 1993.
Penfield W, Rasmussen T. *The Cerebral Cortex of Man.* New York: Macmillan; 1950.
Penfield W, Jasper H. *Epilepsy and the Functional Anatomy of the Human Brain.* Boston, MA: Little, Brown, and Co; 1954.
Temkin O. *The Falling Sickness,* 2nd Edition.
Wyllie E, ed. 2001. *The Treatment of Epilepsy: Principles and Practice,* 3rd Edition. Philadelphia, PA: Lippincott Williams and Wilkins; 2001.