



THE UNIVERSITY OF
TOLEDO
1872

University of Toledo Objectives for Required Clerkships

Neurology I. Learning Objectives

Neurology Clerkship Objectives for Specific Topics

Educational objectives - Stroke

The student should be able:

1. To describe the different subtypes of stroke and their etiologies.
2. To match the specific stroke syndromes with the artery involved.
3. To describe the tests which are commonly used in the diagnosis of stroke?
4. To identify the major risk factors for stroke.
5. To outline the major points of the ischemic cascade.
6. To describe treatment of acute stroke and prevention of recurrent stroke.
7. To name the common medical complications of stroke and how to treat or prevent them.

Educational objectives - Epilepsy and Seizures

The student should be able:

1. To differentiate between seizures, epilepsy and syncope.
2. To classify seizures and recognize the clinical features of different subtypes of seizures.
3. To utilize ancillary tests such as EEG and MRI in the diagnosis and management of epileptic disorders.
4. To identify appropriate treatment options for patients with epilepsy including conventional as well as newer antiepileptic agents.
5. To recognize the role of surgery in management of epilepsy.
6. To recognize common adverse events associated with medications in management of epileptic disorders.
7. To recognize and manage status epilepticus.

Educational objectives - Dementia

The student should be able:

1. To define dementia and delirium.
2. To differentiate between delirium and dementia.
3. To recognize clinical and laboratory features of different types of dementia.
4. To create a differential diagnosis for individuals with cognitive problems.
5. To recognize and manage patients with Alzheimer's disease.

Educational objectives - Neuromuscular Diseases

The student should be able:

1. To differentiate between upper motor neuron (UMN) and lower motor neuron (LMN) dysfunction by measuring distribution of weakness, muscle bulk, muscle tone, and reflex changes for disorders of weakness.
2. To list components of the motor unit and contrast the common LMN clinical syndromes of neuropathy, neuromuscular junction disorders and myopathy by symptoms, sensory changes, reflex changes, muscle bulk, and tone.
3. To describe each of the following and discuss the localization of each for Peripheral sensorimotor disorders.
 - a. Radicular pain
 - b. Radiculopathy
 - c. Mononeuropathy
 - d. Meralgia paresthetica
 - e. Mononeuritis multiplex (multiple mononeuropathy)
 - f. Polyneuropathy
 - g. Paresthesia
 - h. Fasciculation
 - i. Describe the typical clinical findings in root lesions at C-5 and L-5
 - j. Herniated nucleus pulposus (HNP)
 - k. Straight leg raising signs
4. To discuss symptoms, examination and laboratory findings of carpal tunnel syndrome (median mononeuropathy at the wrist).
5. To describe an approach to the workup of a chronic polyneuropathy.
6. To describe the time course, symptoms, laboratory findings, and treatment of acute inflammatory demyelinating polyneuropathy (AIDP; Guillain-Barre' syndrome); Discuss criteria used to determine the need for ventilatory support in patients with AIDP.
7. To describe the usual clinical features and differential diagnosis of motor neuron disease.
8. To describe the pathogenesis, usual clinical presentation, workup, and therapy of myasthenia gravis.
9. To describe the common clinical manifestations and enzyme findings of the following myopathies:
 - a. Duchenne muscular dystrophy
 - b. Myotonic dystrophy
 - c. Polymyositis

Educational objectives - Headaches

The student should be able:

1. To differentiate between primary and secondary headaches.
2. To understand the mechanism of headache and the pathogenesis of migraine.
3. To follow a systematic approach to management of patients with headaches
 - a. History taking
 - b. Diagnosis and differential diagnosis
 - c. Investigations
 - d. Treatment
4. Be able to present and discuss headache causes during the last ten minutes of lecture.

Educational objectives - Movement Disorders

The student should be able:

1. Clinically differentiate between hyperkinetic and hypokinetic movement disorders.
2. Describe the classical, pathological and neurochemical features of idiopathic Parkinson's disease (PD).
3. Describe the clinical, genetic and pathological features of Huntington's disease.
4. Discuss the pharmacological options available for the treatment of Essential Tremor (ET) and PD.
5. Name the most common complications of drug therapy of PD.
6. List the common non-motor complications of PD.
7. Describe the surgical options available to patients with ET and PD.

Neurology Student Lecture Series Objectives

Approach to a Patient with a Focal Weakness, Aphasia, and Stroke

At the end of the lecture the student will be able to:

1. Ascertain whether focal weakness is due to a lesion in the central or peripheral nervous system.
2. Distinguish between upper motor neuron (UMN) and lower motor neuron (LMN) facial weakness, and give a differential diagnosis for LMN facial weakness.
3. Localize the lesion in a person with hemiparesis and give a differential diagnosis based on clinical exam and temporal course.
4. Localize the lesion in a patient presenting with "wrist drop".
5. Localize the lesion in a patient presenting with "foot drop".

Approach to a Patient with Seizures and Syncope

At the end of the lecture the student will be able to:

1. List and describe the major causes of transient loss of awareness.
2. Describe the differences between syncope and seizures.
3. Know the clinical features of headaches and sleep disorders that cause loss of awareness.
4. Describe the differences between simple partial, complex partial, and secondarily generalized seizures.
5. Describe the major types of generalized seizures and epilepsy syndromes, and their EEG features.
6. Know the major drugs used in treatment of partial vs. generalized epilepsies, and major surgical treatments of epilepsy.
7. Know the approach to treatment of status epilepticus.

Approach to Neurologic Localization

At the end of the lecture the student will be able to:

1. Differentiate various patterns of weakness.
2. Localize different patterns of weakness based on history and examination.
3. Review the different etiology of diffuse weakness.
4. Learn the clinical features of common neuropathies and myopathies.
5. Learn the clinical features of neuromuscular junction disorders.

Approach to a Patient with Involuntary Movements

At the end of the lecture the student will be able to:

1. Describe differences between hypokinetic and hyperkinetic disorders.
2. Name the cardinal signs and symptoms of Parkinson's disease (PD).
3. Describe three of the Parkinson's plus syndromes and two clinical features that distinguish each from true idiopathic PD.
4. Name the cardinal signs and symptoms of Huntington's disease.
5. List appropriate surgical procedures for the management of advanced PD.

Approach to a Patient with Delirium

At the end of the lecture the student will be able to:

1. Define delirium.
2. Contrast delirium with dementia as they are two common disorders of the elderly though they can occur at any age.
3. Describe features associated with delirium and its potential effect on outcome.
4. Name some causes of delirium and their respective methods of diagnostic evaluation and management.
5. Discuss delirium tremens, why it is an emergency, and why do such patients die?

Approach to a Patient with Dementia

At the end of the lecture the student will be able to:

1. Define dementia and delirium.
2. Differentiate between delirium and dementia.
3. Recognize clinical and laboratory features of different types of dementia.
4. Create a differential diagnosis for individuals with cognitive problems.
5. Recognize and manage patients with Alzheimer's disease.

Approach to Neuroimaging

At the end of the lecture the student should be able to:

1. Recognize the differences between different imaging modalities used to assess disorders of the nervous system
2. Recognize radiological features of common neurological disorders
3. Understand and recognize the role of CT and MRI in evaluation of patients with neurological disorders

Approach to Neurologic Emergencies

At the end of the lecture the student should be able to

1. To identify and manage common neurologic emergencies
2. To recognize and understand clinical features, diagnostic and management principles of status epilepticus
3. To recognize and understand clinical features of patients presenting to the emergency department with acute cerebrovascular event
4. To recognize and understand clinical features, diagnostic evaluation and management of acute generalized weakness
5. To recognize and understand clinical features of raised intracranial pressure and its management.

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II. Patient Encounters Required to Achieve Objectives Student Involvement

Cerebrovascular Disease

- 1- Evaluate at least two patients during the rotation as a primary student with cerebrovascular disease (cerebral infarct, intracerebral hemorrhage, subarachnoid hemorrhage).

Epilepsy

- 1- Evaluate at least three patients with epilepsy or seizures as a primary student either on inpatient or outpatient setting

Movement Disorder

- 1- Evaluate at least two patients with movement disorders (Parkinson's, Huntington's, drug induced movement disorder)

Multiple Sclerosis

- 1- Evaluate one patient either on inpatient or outpatient with demyelinating disease as the primary student

Headache

- 1- Evaluate at least three patients with headaches in either outpatient or inpatient setting

Neuropathy

- 1- Evaluate at least one patient with peripheral neuropathy in outpatient or inpatient setting

Cognitive Impairment

- 1- Evaluate at least one patient with either chronic cognitive impairment (dementia) or acute alteration of mental status (delirium)

Acute or Chronic Pain

- 1- Evaluate one patient with a pain syndrome (excluding headache) for example back pain, fibromyalgia etc.

All evaluations involve history and examination with an associated discussion with the attending.

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III. Teaching Venues

Teaching venues for the clerkship include:

- University of Toledo Medical Center.
- Ambulatory clinic in at UTMC (RHC)
- Fulton County and Oregon Outpatient Clinics
- Riverside Hospital, Columbus OH
- Henry Ford Health System, Detroit, MI
- AHEC sites in Bellevue, Sandusky and Lima, OH – Private Practice Groups

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IV. Student Requirements

- Treat patients, staff and teachers with sensitivity and respect. Breach of professionalism standards will result in submission of a professionalism behavior report in accordance with institutional policies.
- Attend and participate fully in experiences located in ambulatory and in-patient settings by evaluating patients as described in Part II, engaging in inquiry based learning and independent study.
- Use the electronic, web-based, database to keep a log of new patient work ups documenting the types of patients seen and the level of responsibility.
- Attend and participate fully in the seminar series. These sessions *are not didactic lectures*, so the student is expected to know the material prior to attending the seminar. The purpose of the seminars is to provide guidelines for management of common neurological disorders. Students, who are unclear on how to prepare for the seminar, should refer to the study guide section presented in the students' handbook.
- Participate in a Clinical Performance Exam with standardized patients.

Neurology V. Evaluation

Evaluation for students in this clerkship is both formative and summative.

Formative feedback:

- Oral feedback is provided routinely as a part of all clinical experiences. Students receive feedback from residents, preceptors and/or attending as they present patients, formulate and suggest diagnostic and therapeutic plans, communicate with patients and perform physical examination and procedures.
- Written formative feedback is provided midway through the clerkship by preceptors and/or attending. Students are required to request feedback at least once. There is a formal feedback session at the mid point of the rotation with the Clerkship Director.
- Feedback for clinical skills is provided in conjunction with the Clinical Performance Exam (CPX).

Summative evaluation:

Summative evaluation reflects all three domains, knowledge, skills and attitudes.

- Students' mastery of knowledge objectives related to this discipline is measured by the NBME subject examination (40 points).
- Students' clinical competence and professionalism is evaluated using the standard Clinical Competence Evaluation Form (40 points).
- Departmental Educational Program will consist of a neurology case vignette (10 points) and evidence based medicine case reports ((10 points). These will be scored according to pre-determined objective criteria.