

The Hebrew University of Jerusalem

Syllabus

NEUROLOGY - FIFTH YEAR - 96818

Last update 04-11-2015

HU Credits: 4

Degree/Cycle: 2nd degree (Master)

Responsible Department: medicine

Academic year: 0

Semester: Yearly

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Dr. Zvi Israel

Coordinator Email: israelz@hadassah.org.il

Coordinator Office Hours: By arrangement

Teaching Staff:

Prof Ronen Leker
Dr. Ido Paldor

Course/Module description:

1. One week of introductory lectures at the start of the academic year;
2. A single four week rotation between the clinical departments during the clinical year concluding with an oral examination;
3. A written multiple choice examination at the end of the academic year.

Course/Module aims:

Understand all the major categories of neurological disease, including epidemiology, etiology, diagnosis, differential diagnosis, treatment, prevention, complications and prognosis.

Learning outcomes - On successful completion of this module, students should be able to:

1. Perform a neurological examination; interpret pathological findings
2. Propose a rational differential neurological diagnosis
3. Recommend appropriate investigations; interpret results of those investigations
4. Formulate and justify a treatment plan

Attendance requirements(%):

100

Teaching arrangement and method of instruction: The four week rotation between the clinical departments includes:

teaching rounds (bedside teaching), outpatient clinics, attending surgery in the operating rooms and emergency room

Course/Module Content:

1. Neurological examination
 - a. Higher functions: Mini Mental State Exam (MMSE), memory, language (aphasias), praxis, spatial function and neglect, executive function, agnosia.
 - b. Cranial nerve function, relevance in terms of localization and differential diagnosis.
 - c. Pyramidal and motor function, power, tone, normal tendon reflexes, pathological reflexes and pyramidal reflexes.
 - d. Sensory function: pinprick, light touch, deep sensation, proprioception, vibration

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- e.Cerebellar function
 - f.Gait: evaluation and differential diagnosis of gait disorders
 - g.Localization of central nervous system deficit/dysfunction
 - h.Localization of peripheral nervous system dysfunction: spinal root/plexus/peripheral nerve/muscle.
 - i.Bulbar and pseudobulbar syndromes
 - j.Dysarthria
 - k.Evaluation and differential diagnosis of the comatose patient
 - l.Brain death, chronic vegetative state, minimally conscious state.

2.Cerebrovascular disease

- a.Vascular risk factors – treatment and prevention
- b.Treatment of acute stroke
- c.Prevention of cerebrovascular disease
- d.Neuroangiography: basic differential diagnoses
- e.Diagnosis and management of stroke in the young
- f.Intracerebral hemorrhage: cause, types, treatment
- g.Subarachnoid hemorrhage: differential diagnosis, initial evaluation, treatment and management, complications – prevention and management.
- h.Cerebral sinus vein thrombosis – diagnosis, management and treatment
- i.Neurological rehabilitation following stroke.

3.Epilepsy

- a.Treatment of status epilepticus
- b.Various epilepsy syndromes: Generalized tonic clonic seizures, Petit Mal, Complex partial seizures, simple partial seizures, Jacksonian march, Juvenile myoclonic epilepsy, pseudoseizures.
- c.Antiepileptic medications, indications for therapy, side effects
- d.Surgical options

4.Multiple Sclerosis, Demyelinating diseases and Autoimmune diseases

- a.Diagnosis treatment and management of multiple sclerosis
- b.Differential diagnosis of demyelinating diseases including acute transverse myelitis, post infectious plexitis and disseminated encephalomyelitis.
- c.Guillaine Barré syndrome, Acute Inflammatory Demyelinating Polyradiculoneuropathy
- d.Myasthenia Gravis, Lambert-Eaton Myasthenic syndrome
- e.Vasculitis of the nervous system: diagnosis, differential diagnosis and treatment.
- f.Polyneuritis rheumatica and temporal arteritis

5.Parkinson's disease and other extrapyramidal disorders

- a.Diagnosis and treatment of Parkinson's disease
- b.Differential diagnosis of Parkinsonism
- c.An approach to extrapyramidal disorders
- d.Chorea, dystonia, dyskinesias, ballismus, akathisia, definitions and differential diagnoses

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- e. Essential tremor*
 - f. Tics and Tourette syndrome*
 - g. Deep Brain Stimulation – indications*

6. Neuromuscular diseases

- a. Signs and symptoms of peripheral nerve dysfunction*
- b. Differential diagnosis of neuropathy: distribution, large/small fiber, motor/sensory, pain, evolution of the deficit*
- c. Thoracic outlet syndrome*
- d. Amyotrophic Lateral Sclerosis*
- e. Differential diagnosis of muscular disease*
- f. Polymyositis, dermatomyositis*
- g. Duchenne muscular dystrophy*
- h. Mitochondrial diseases*

7. Neurooncology

- a. Glial tumors, neural tumors, metastases and brain lymphoma*
- b. Differential diagnosis of intra-axial tumors*
- c. Types of primary brain tumor, treatment options and prognosis*
- d. Approach to the patient with an intra-axial brain tumor*
- e. Approach to the patient with brain metastases*
- f. Extra-axial tumors, differential diagnosis, treatment options and management*
- g. Skull base tumors, differential diagnosis, approach and surgical management*
- h. Spinal tumors, location-based differential diagnosis, management and treatment*
- i. Radiosurgery: concept and indications*

8. Basic neurosurgical approaches

- a. Stereotactic procedures, concept and practice*
- b. Craniotomy*
- c. Approaches to the skull base*
- d. Measuring intracranial pressure*
- e. Spinal approaches*

9. Hydrocephalus and intracranial pressure

- a. Pathogenesis: obstructive hydrocephalus, communicating hydrocephalus, malabsorptive hydrocephalus, overproduction of cerebrospinal fluid*
- b. High pressure hydrocephalus: causes, differential diagnosis, significance, management and treatment*
- c. Increased intracranial pressure*
- d. Idiopathic intracranial hypertension (pseudotumor cerebri)*
- e. Low intracranial pressure – diagnosis and treatment*

10. Headache

- a. Differential diagnosis with stress on life-threatening diseases: hemorrhagic stroke, subarachnoid hemorrhage, meningitis*
- b. Neurological evaluation to differentiate between primary headache and*

symptomatic headache
c.Treatment of migraine and tension headache
d.Cluster headache
e.Trigeminal neuralgia

11.Infections of the nervous system

a.Bacterial meningitis: diagnosis and treatment
b.Differential diagnosis of aseptic meningitis
c.Lumbar puncture: findings and interpretation
d.Brain abscess, epidural and subdural empyema, postoperative infections
e.Meningo-encephalitis: differential diagnosis and treatment
f.Poliomyelitis
g.Neurological complications of AIDS
h.Prion disease and subacute sclerosing panencephalitis

12.Head trauma

a.Management of head trauma
b.Surgical evacuation of traumatic hemorrhage: approach, indications and management
c.Ways of measuring intracranial pressure
d.Increased intracranial pressure: differential diagnosis and management
e.Noninvasive techniques of managing increased intracranial pressure
f.Invasive techniques of managing increased intracranial pressure
g.Herniation syndromes

13.Drugs /medications in neurology: indications, side effects and neurological complications

a.Tricyclic antidepressants
b.Anticonvulsants
c.Analgesics and narcotics
d.Medications for dementia
e.Medications for Parkinson's disease
f.Antiplatelet therapy

14.Spinal disease

a.Spinal degenerative disease: diskopathy, spondylolisthesis
b.Surgical approach in the management of spinal disorders
c.Tumors of the spinal column and spinal cord: intramedullary, intradural extramedullary and extradural tumors
d.Cauda equine and conus medullaris syndromes
e.Syringomyelia
f.Spinal trauma: initial management, decision making and surgical approaches
g.Anterior spinal artery syndrome
h.Brown-Sequard syndrome

15.Sleep disorders

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- a.Narcolepsy and cataplexy
 - b.Obstructive sleep apnea

16.Metabolic and endocrine disorders and neurological manifestations of systemic disease.

- a.Thyroid disease
- b.Lack of vitamins B1, B12
- c.Electrolyte disturbances, syndrome of inappropriate ADH secretion, cerebral salt wasting syndrome
- d.Hepatic and uremic encephalopathy
- e.Neurological complications of collagen diseases and systemic autoimmune disorders

17.Behavioral neurology

- a.Alzheimers disease
- b.Multi-infarct dementia
- c.Frontotemporal dementia
- d.Frontal syndromes
- e.Multisystem atrophies
- f.Normal pressure hydrocephalus
- g.Wernicke-Korsakoff encephalopathy
- h.Transient global amnesia

18.Neurological investigations

- a.Lumbar puncture
- b.Electroencephalography
- c.Evoked potentials
- d.Nerve conduction velocity, electromyography
- e.Imaging in neurology: CT, MRI, angiography, PET, DTI

19.Neuroophthalmology and neurootology

- a.Examination of the pupil and its significance
- b.Differential diagnosis of a swollen optic disk
- c.Visual fields; correlation of defects with localization
- d.Workup of diplopia
- e.Horners syndrome
- f.Ptosis
- g.Optic neuritis
- h.Internuclear ophthalmoplegia
- i.Eye movements
- j.Anterior ischemic optic neuropathy
- k.Hearing loss – approach, differential diagnosis with respect to the CNS

Required Reading:

Aminoff,Greenberg,Simon, Clinical Neurology Lange

Lindsay,Boe,Callandri: Neurology and Neurosurgery Illustrated

Additional Reading Material:

Harrison's Principles of Internal Medicine, Neurology section

Wilkins and Remgachary: Neurosurgery

Allen and Miller: Essentials of Neurosurgery: A guide to Clinical Practice

Course/Module evaluation:

End of year written/oral examination 100 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

Minimum prerequisites for taking the end of year MCQ are a 100% attendance record and passing the end-of rotation oral/physical examination