Ministry of Health of the Republic of Belarus
Educational institution «Grodno State Medical University»

Department of Neurology and Neurosurgery

GUIDELINES TO PRACTICAL STUDIES IN NEUROLOGY AND NEUROSURGERY

EXTRACT FOR THE VIII SEMESTER

2.8 TOPIC: Multiple sclerosis. Epilepsy.

Educational-target questions

1. To be able to define multiple sclerosis.
2. To know epidemiology of multiple sclerosis.
3. To give a description of the neuropathological hallmark of multiple sclerosis.
4. To know pathogenesis of demyelinating diseases of the CNS.
5. To give a description of the four major types of the temporal course of multiple sclerosis.
6. To know clinical manifestations and neurological findings in multiple sclerosis.
7. To give a description of diagnostic evaluation in multiple sclerosis.
8. To be able to define treatment strategies in multiple sclerosis.
9. To know treatment of complications in demyelinating diseases of the CNS.
10. To know prognosis and medical pitfalls in multiple sclerosis.
11. To be able to define epilepsy and to classify types of seizures.
12. To know pathogenesis and pathophysiology of epilepsy.
13. To know clinical manifestations and neurological findings in epilepsy.
14. To know diagnosis and differential diagnosis of epileptic seizures.
15. To know treatment of epilepsy and status epilepticus.

Practical skills

1. Differential diagnosis of multiple sclerosis and acute disseminated encephalomyelitis.
2. Differential diagnosis of epileptic seizure and syncope.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 158–171, 324–343.
2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 156–160, 161–172.
3. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 89–127, 277–287.

2.9 TOPIC: Cerebral infarction. Vascular encephalopathy.

Educational-target questions

1. Great vessels of the head; the territories of the major cerebral arteries.
2. Definition and classification of stroke (all types).
3. Definition of ischemic stroke, the TOAST classification of subtypes.
4. Etiology and risk factors of ischemic stroke.
5. Anterior cerebral artery and middle cerebral artery syndromes.
6. Internal carotid artery and posterior cerebral artery syndromes.
7. Basilar artery syndromes and syndromes of vertebrobasilar branches.
8. Lacunar infarctions.
9. Investigative studies and treatment in ischemic stroke.
10. Intracerebral hemorrhage.
11. Pathogenesis, clinical findings, diagnosis, treatment.
12. Subarachnoid hemorrhage: clinical findings, differential diagnosis and complications.
13. Treatment and prognosis of subarachnoid hemorrhage.
14. Dyscirculatory encephalopathy – classification, clinical presentation, treatment.
15. Vascular dementia.

Practical skills

1. Differential diagnosis of carotid and vertebrobasilar ischemic stroke.
2. Emergency aid in ischemic stroke.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 203–226, 234–237.

2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 98–106.

3. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 207–216.

2.10 TOPIC: Subarachnoid hemorrhage. Intracerebral hemorrhage.

Educational-target questions

1. Definition of subarachnoid hemorrhage.
2. Etiology and pathogenesis of subarachnoid hemorrhage.
3. Clinical findings, differential diagnosis and complications in subarachnoid hemorrhage.
4. Cerebral vasospasm and secondary ischemic stroke in subarachnoid hemorrhage.
5. Treatment and prognosis of subarachnoid hemorrhage.
6. Definition and pathogenesis of intracerebral hemorrhage.
7. Clinical findings and differential diagnosis in intracerebral hemorrhage.
8. Differential diagnosis of intracerebral hemorrhage.
9. Secondary intracerebral hemorrhage.
10. Treatment of intracerebral hemorrhage.

Practical skills

1. Diagnosis of subarachnoid hemorrhage.
2. Emergency aid in intracerebral hemorrhage.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 226–237, 344–363.

2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 106–110.

3. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 217–223.

2.11 TOPIC: Diseases of the peripheral nervous system. Vertebrogenic lesions of the nervous system.

Educational-target questions

1. Classification of diseases of the peripheral nervous system.
2. Peripheral nerve lesions: fundamentals.
3. Polyneuropathy: etiology and general features.
4. Acute inflammatory polyneuropathy (Guillain-Barre syndrome): clinical presentation, diagnostic criteria, treatment.
5. Metabolic and nutritional polyneuropathies.
6. Infective polyneuropathies.
7. Polyneuropathy due to arterial and connective tissue disease.
8. Drud-induced and toxic polyneuropathies.
9. Entrapment neuropathies.
10. Bell's palsy.
11. Trigeminal neuralgia.
12. Diseases of the brachial plexus.
13. Herpes zoster (shingles).
14. Neurological complications of degenerative disease of the spine.
15. Intervertebral disk and its herniation.
16. Low back pain.
17. Neck pain.
18. Lumbar disc disease (fifth and fourth lumbar radiculopathy, first sacral radiculopathy).
19. Diagnosis and differential diagnosis.
20. Conservative treatment, indications for surgical treatment.

Practical skills

1. Differential diagnosis of reflexogenic neck and back pain with disk-related radiculopathies.
2. Diagnostic evaluation in polyneuropathy.
3. Selection of patients for surgical treatment in lumbar disc disease.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 238–274.

2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 173–179, 207–242.

3. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 78–88.

2.12 TOPIC: Hereditary and degenerative diseases of the nervous system.

Educational-target questions

1. To know types of muscular dystrophy, their clinical features and general approach to treatment.
2. To know differential diagnosis of muscular dystrophy with spinal muscular atrophy and amyotrophic lateral sclerosis.
3. To know pathogenesis and clinical features of myotonia and periodic paralysis.
4. To know definition and classification of amyotrophic lateral sclerosis.
5. To give a description of clinical features, differential diagnosis, investigation and treatment of amyotrophic lateral sclerosis.
6. To know classification, clinical presentation, diagnostic criteria and treatment of hereditary neuropathies.
7. To be able to define myasthenia gravis and Lambert-Eaton syndrome.
8. To know clinical features, diagnosis and differential diagnosis of myasthenia gravis.
9. To know treatment of myasthenia gravis.
10. To give a description of the neuropathological hallmark of Parkinson disease and its clinical picture.
11. To know pharmacotherapy of Parkinson disease.
12. To give a description of clinical features, differential diagnosis, investigation and treatment of Wilson disease.
13. To know pathogenesis and clinical features of Huntington disease.
14. To know the neuropathological hallmark and clinical variants of syringomyelia.

Practical skills

1. Differential diagnosis of focal muscular atrophy.
2. Diagnosis and recommendation for treatment of Parkinson disease.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 275–323.

2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 127–137, 151–155, 262–278.

3. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 327–390.

2.13 TOPIC: Neurosurgical treatment of circulatory and vertebrogenic disorders of the nervous system.

Educational-target questions

1. Arterial aneurysms – structure and location.
2. Pathogenesis and clinical features of pre-hemorrhagic and hemorrhagic periods.
3. Instrumental diagnostics.
4. Surgical treatment.
5. Arteriovenous malformations.
6. Clinical manifestation and diagnosis.
7. Treatment approaches.
8. Carotid-cavernous fistula: diagnosis and surgical treatment.
9. Neurosurgical treatment of intracerebral hemorrhages.
10. Indications and contraindications for craniotomy and endoscopic treatment.

Practical skills

1. Selection of patients for surgical treatment in intracerebral hemorrhage.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 344–380.

2. Kaye A. H. Essential neurosurgery. – 3rd ed. – Malden, Oxford, Carlton: Blackwell Publishing, 2005. – P. 125–157.

2.14 TOPIC: Traumatic injuries of the central nervous system.

Educational-target questions

1. Epidemiology and classification of head trauma.
2. Pathophysiology of traumatic brain injury.
3. Intracranial compartments and types of herniation.
4. Mild head injury (brain concussion and mild contusion).
5. Clinical features of diffuse axonal injury.
6. Subdural hematoma.
7. Epidural hematoma.
8. Investigative studies in traumatic brain injury.
9. Treatment of head injury.
10. Complications of traumatic brain injury.
11. Clinical features of head trauma in elderly patients and in alcoholic intoxication.
12. Spinal cord trauma: prevalence and mechanisms, classification, pathogenesis.
13. The notion about spinal shock.
14. Diagnosis of level and degree of spinal cord trauma (concussion, contusion and compression).
15. Conservative and surgical treatment.

Practical skills

1. Diagnostic evaluation in suspicion about traumatic brain injury.
2. Differential diagnosis of traumatic brain injury and stroke.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 381–436.

2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 87-92, 145-146.

3. Kaye A. H. Essential neurosurgery. – 3rd ed. – Malden, Oxford, Carlton: Blackwell Publishing, 2005. – P. 40–63, 225–233.

4. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 250-276.

2.15 TOPIC: Brain and spinal tumors.

Educational-target questions

1. To know classification of brain tumors.
2. To know primary (focal) clinical presentation of brain tumors.
3. To know secondary clinical presentation (elevated intracranial pressure, displacement and herniation) of brain tumors.
4. To know specific clinical presentation of craniopharyngiomas and pituitary adenomas.
5. To give a description of clinical features, differential diagnosis, investigation and treatment of primary CNS lymphoma.
6. To know classification, clinical presentation, diagnostic criteria and treatment of tumors of neuroglial cells.
7. To know principles, techniques and outcomes of surgical treatment in brain tumors.
8. To know treatment of meningiomas.
9. To give a description of the neuropathological hallmark of metastatic brain tumors.
10. To know principles, techniques and outcomes of radiation- and chemotherapy in brain tumors.
11. To give a description of main neurological syndromes (radiculo-meningeal syndrome, spinal cord transection syndrome, block of spinal subarachnoid space) of spinal tumors.
12. To know principles of symptomatic treatment in brain tumors.
13. To know diagnosis and differential diagnosis of extramedullary and intramedullary tumors.
14. To know principles of surgical treatment of spinal tumors.

Practical skills

1. Detection of clinical syndromes in brain tumors.
2. Detection of clinical syndromes in spinal tumors.
3. Diagnostic evaluation in suspicion about brain tumor.

LITERATURE

1. Kulesh S.D., Alekseenko Y.V., Lebeyko A.I. Neurology and Neurosurgery: tutorial for students of the faculty of foreign students. – Grodno: GrSMU, 2012. – P. 437–468.

2. Mumenthaler M., Mattle H. Fundamentals of Neurology. – Stuttgart, New York, 2006. – P. 92-98, 146-148.

3. Kaye A. H. Essential neurosurgery. – 3rd ed. – Malden, Oxford, Carlton: Blackwell Publishing, 2005. – P. 64–124.

4. Manual of Neurologic Therapeutics / Eds. M.A. Samuels. – Boston: Little, Brown and Company, 1995. – P. 224-249.