講義ユニット名 Title of Lecture	Brain and Nerves	所属科目名 Title of Course	Clinical diagnosis and treatment I

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授業方法 Lesson Style	Lectures using PowerPoint slides.
概要 Overview	Brain and nerves, which are complicatedly composed of the central and the peripheral nervous systems, control muscle movement and also control the five senses (vision, hearing, touch, taste, and smell) necessary to perceive the outside world. It is important to understand the central and peripheral nervous systems and the structure and function of muscles in order to make accurate diagnoses of a variety of diseases widely ranging from the central and peripheral nervous systems and muscles and select appropriate treatment in clinical settings. It is also necessary to appropriately understand the pathology and symptoms of circulatory disorders, tumors, inflammatory diseases, and degenerative disease in each system because they may lead to disorders that affect the whole body, resulting in death, a bed-ridden state, and the need for care.
講義ユニットの到達目標 Academic Goals	Explain medical insurances, publicly funded healthcare services, and long-term care insurances. Explain the microstructure of the nervous system. Give an outline of the structures of the central and peripheral nervous systems. Explain the vascular supply of the brain and the blood-brain barrier. Explain the characteristics of the energy metabolism of the brain. Explain major intracerebral neurotransmitters (acetylcholine, dopamine, noradrenaline, and glutamic acid) and their actions. Explain the structure of the meninges and ventricular system and the production and circulation of cerebrospinal fluid. Explain the structure, functional localization, and conducting pathway of the spinal cord. Explain spinal reflexes (stretch reflex and flexor reflex) and the reciprocal innervation of muscles.

	Give an outline of the structures of the spinal nerve and plexuses (cervical plexus, brachial plexus, lumbosacral plexus) and innervation of major skeletal muscles and cutaneous distribution. Explain the structure and conducting pathway of the brainstem. List the names of cranial nerves and give an outline of nuclear localization, course and distribution, and function. Give an outline of the function of the brainstem. Explain the structure of the cerebrum. Explain the functional localization (motor area, sensory area, language area, and association area) of the cerebral cortex. Give an outline of the mechanism of memory and learning in relation to the structure of the limbic system. Give an outline of the mechanism of production of voluntary movements with a focus on the pyramidal tract. Give an outline of the structure and function of the cerebellum. Give an outline of the fiber connection and the function of the basal ganglia (striatum, globus pallidus, and substantia nigra). Explain the mechanisms of pain perception, temperature perception, tactile sensation and deep sensation, and their pathways. Give an outline of the mechanisms and pathways of visual, auditory/equilibrium, olfactory, and gustatory reception. Give an outline of the central localization, peripheral distribution, functions and pathways of the sympathetic and parasympathetic nervous systems. Give an outline of the structure and function of the hypothalamus in relation to endocrine and autonomic function. Explain findings from CT/MRI scanning of the brain and spinal cord. Explain findings from electrophysiological tests (electroencephalogram, electromyogram, and peripheral nerve conduction velocity) of the nervous system. Explain findings from cerebral angiography examinations. Explain findings from nerve and muscle biopsies. Differentiate and explain cerebellar, vestibular, and sensorimotor disorders. Give an outline of tremor. Give an outline of other involuntary movements (myoclonus, chorea, dystonia). Classify gait disorders by pathology. Explain differences between aphasia and dysarthria. Classify speech disorders by pathology. Explain the pathology of cerebral edema. Explain symptoms of acute and chronic intracranial hypertension.

	Explain types and symptoms of brain herniation. Explain the pathology, symptoms, and diagnosis of cerebrovascular disorders (cerebral infarction, intracerebral hemorrhage, and subarachnoid hemorrhage). Give an outline of treatment options and rehabilitation of cerebrovascular disorders. Give an outline of spinal vascular disorders. List causes of dementia. Explain the symptoms and diagnosis of major pathologies that causes dementia (Alzheimer's-type dementia and vascular dementia). Explain the pathology, symptoms, and diagnosis of Parkinson's disease. Give an outline of amyotrophic lateral sclerosis. Give an outline of spinocerebellar ataxia. Explain causes, symptoms, and diagnosis of encephalitis/meningitis. Explain the pathology, symptoms and diagnosis of multiple sclerosis. Give an outline of brain abscess. Explain the classification and predilection sites for major brain and spinal cord tumors. Explain the classification of head injury. Explain the symptoms and diagnoses of acute epidural hematoma and subdural hematoma. Explain the symptoms and diagnosis of chronic subdural hematoma. Give an outline of treatment options and rehabilitation of head injury. Classify the causes (malnutrition, poisoning, hereditary nature) and pathology of neuropathy. Explain the symptoms and diagnosis of Guillain-Barre syndrome. Explain the symptoms, diagnosis, and treatment of Bell's palsy. Give an outline of major neuralgias (trigeminal, intercostal, and sciatic neuralgias). Explain the pathology, symptoms, and diagnosis of myasthenia gravis. Explain the causes, classification, symptoms, and diagnosis of progressive muscular dystrophy. Give an outline of periodic paralysis. Give an outline of mitochondrial encephalomyopathy. Explain the classification, diagnosis and treatment of epilepsy (including pediatric epilepsy). Explain the types, symptoms, and diagnosis of hydrocephalus. Give an outline of syringomyelia. Give an outline of spina bifida. Illustrate the location of all endocrine organs and list hormones secreted from them. Explain the names and functions of hypothalamic hormones and pituitary hormones and their interrelationship.

	Explain somatic symptoms caused by hormone excess or deficiency. Explain the principles of and the types of responses to hormone-secretion stimulation tests and hormone suppression tests. Explain the pathology and diagnosis of Cushing's disease. Give an outline of acromegaly. Give an outline of panhypopituitarism. Give an outline of diabetes insipidus. Explain the significance and indications of hypothalamo-hypophyseal imaging. Give an outline of hyperprolactinemia. Explain surgical treatment of pituitary tumors. Give an outline of amyloidosis. Give an outline of prion disease, CJD and PML. Explain the symptoms, diagnosis, and treatment of human T-cell leukemia virus infection. Explain the symptoms, diagnosis, and treatment of varicella-herpes zoster. Explain the symptoms, diagnosis, and prevention of diphtheria, tetanus, and pertussis. Give an outline of rickettsial infection. Explain the types and clinical significance of autoantibodies. Give an outline of connective tissue diseases and autoimmune disease and list their types. Explain the symptoms, diagnosis and treatment of dermatomyositis and polymyositis. List vasculitis syndromes and explain their pathophysiology, symptoms, diagnosis, and treatment. Give an outline of Sjogren's syndrome. Give an outline of Behcet's syndrome. Explain the symptoms, diagnosis, and treatment of entrapment neuropathy. Explain the symptoms, diagnosis, and treatment of peripheral nerve trauma. Explain the specificity of pathology, symptoms, treatment, and rehabilitation in elderly people. Explain the Comprehensive Geriatric Assessment (CGA). Explain the pathology of geriatric syndrome (aspiration, fall, incontinence, and decubitus) and its treatment and prevention. Explain nutritional needs specific to elderly people. Explain the causes and pathology of dyspnea. Explain the causes and pathology of dizziness. Explain important points in treating patients complaining of dizziness. Explain the causes and pathology of headache. Explain important points in treating patients complaining of headache.

	Explain the causes and pathology of paralysis and muscle weakness. Explain important points in treating patients complaining of paralysis and muscle weakness. Explain the causes and pathology of aphagia and dysphagia. Explain important points in treating patients complaining of aphagia and dysphagia. List the types and causes of seizures. Give an outline of the important points in treating patients with seizure. Give an outline of the primary treatment for seizure activity. List the causes of consciousness disturbance and syncope and explain their pathologies. Explain the evaluation scales of the level of consciousness disturbance (GCS and JCS). Explain important points in treating patients with consciousness disturbance or syncope. Give an outline of treatment of patients with consciousness disturbance or syncope. Explain the objectives, indications and abnormal findings of cerebrospinal fluid examination, and analyze its results. Explain the principles of radiography, CT, MRI, and nuclear medicine scanning. Explain the principles of interpretation of radiography (plain/contrast), CT, MRI, and nuclear medicine scanning images. Explain the types and principle of ultrasonographs. List the types of ultrasonography and give an outline of them.
講義日程 Class Schedule	See the attached schedule.
出席の取り扱い Class Attendance Policy	Attendance is taken every lecture using the Student Attendance Management System. A student whose attendance is less than two-thirds of all the classes is not eligible for taking the final examination. In addition countercheck may be performed by each department. When substitute attendance becomes clear, the student of a substitute attendant and the client is not eligible for taking the final examination.
評価項目 Evaluation Item	Achievement level of goals (basic understanding and application of knowledge)
評価法 Evaluation Method	Examination (in the form of a national examination)
履修上のアドバイス	

Advice for Taking the Lecture	
推奨参考書 Recommended Reference Books	[Reference books recommended for purchase] 1) Tazaki Y, et al. *Bedside-no Shinkei-no Mikata (Physical Examination of the Nervous System)*. Nanzando 2) Kanda T. *Igakusei/Kenshui-notameno Shinkeinaikagaku (Textbook of Neurology for Medical Students and Residents)*. Chugai-Igakusha 3) Mizuno Y. *Shinkei Naika Handbook: Kanbetsu-shinryo to Chiryo (Handbook of Neurology: Differential Diagnosis and Treatment)*. Igakushoin 4) *Ronen Igaku Text (Textbook of Geriatric Medicine)*. Nihon Ronen Igakukai (The Japan Geriatrics Society) ed. Medical View Co., Ltd. 5) Kodama N. *Hyojun Noshinkei Gekagaku (Standard Textbook)* 12th ed. Igakushoin 6) *Noshinkei Gekagaku (Neurosurgery)* Revised 11th ed. Ohta T. ed. Kinpodo 7) Greenberg MS. *Handbook of Neurosurgery 6th ed. (Greenberg Noshinkei Geka Handbook)*. Kuroiwa T. trans-ed. Kinpodo 8) Matsutani M. *Kaitei-ban Noshinkei Gekagaku Hisshu Kogi (The Essentials of Neurosurgery)*. Medical View Co., Ltd. 9) Yamano Y. *Massho Shinkei no Rinsho: Shindan, Chiryou, Rehabilitation (Peripheral Nerve: Diagnosis/Treatment/Rehabilitation)*. Ishiyaku Publishing Inc. 10) Suzuki J, et al. *Hyojun Jibi Inkoka Tokeibu Gekagaku (Standard Textbook)*. Igakushoin [Other references useful for this unit] 11) Handouts provided during lectures, which should be carefully read and understood. 12) URL for a list of guidelines of the Japanese Society of Neurology. http://www.neurology-jp.org/guidelinem/index.html