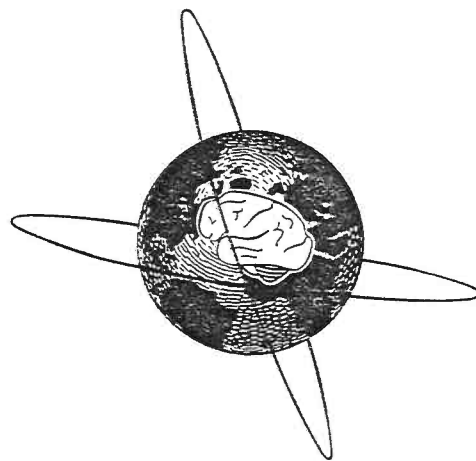


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**50-02 Functional Changes of Peripheral Nervous System with Aging in the Mouse**Xavier Navarro, Enrique Verdu, Miquel Buti. *Universitat Autònoma De Barcelona, Bellaterra*

The influence of aging on peripheral nerve and target organ function was investigated in 6 groups of mice aged 2, 6, 9, 12, 18 and 24 months. Sudomotor, motor and sensory functions mediated by the sciatic nerve were evaluated by silicon imprints, electromyographic and neurographic recordings from the distal hindpaw. The number of sweat glands reactive to pilocarpine averaged 325, 314, 331, 315, 335 and 338 in mice 2, 6, 9, 12, 18 and 24 month old respectively. The cMAP of plantar muscles, evoked by electrical stimulation of the sciatic nerve, decreased in amplitude with age, from mean values higher than 9.0 mV in mice aged 2 and 6 month to less than 6.5 mV in the oldest groups. The motor nerve latency decreased from 2 (mean 2.14 ms) to 6 (1.80 ms) months, was unchanged until 12 months, and increased thereafter (to 2.16 ms at 24 months). Similar patterns were observed in sensory nerve conduction. NAP amplitude decreased from 42 microV in mice aged 6 months to 30 microV in mice aged 18 and 24 months; sensory nerve latency initially decreased (1.89 ms in 2 months, 1.64 ms in 6 month old mice) and increased progressively in older mice (1.97 ms in 24 month old mice).

These results indicate that aging affects differently motor, sensory and autonomic sudomotor functions. Neurophysiological responses mediated by large diameter nerve fibers deteriorated with age, while those dependent on small fibers were preserved.

**50-03 Neurophysiological Study of Risk Factors of Delirium in Elderly Inpatients**S. Okada, T. Kawamura, D. Mori, R. Inoue. *Juntendo University School of Medicine, Tokyo*

In elderly inpatients, development of delirium is a serious problem, because it interferes with medical treatment and is sometimes very dangerous for the patient himself.

For the purpose of detecting risk factors of delirium, we studied medically ill patients over 50 years old. Group 1 consisted of 20 patients who had suffered from delirium and Group 2 consisted of 30 age- and sex-matched patients who had not developed delirium. Neurophysiological examinations (EEG and autonomic nervous function test) as well as evaluation of mental state (STAI and Dementia Rating Scale), laboratory data and severity of physical illness were studied.

In comparison with Group 2, Group 1 patients showed the following characteristics even when their consciousness was clear; (1) in quantitative EEG analysis, decreased power of alpha 2 range (10.00-12.99 Hz) in the occipital area, and increased power of theta (4.00-7.99 Hz) and beta 2 (20.00-25.49 Hz) ranges, (2) in autonomic nervous function test, loss of reactivity to mental or physical stimuli in mental sweating rate and (3) elevated anxiety level and decreased ability of preserving attention in mental tests.

These factors were prospectively applied to screen newly hospitalized patients for delirium.

**50-05 Multimodal Electrophysiological Evaluation of the Central Nervous System in Patients with Mitochondrial Myopathy**

A. Parretti\*, L. Santoro\*, B. Lanzillo\*\*, A. Orsini\*, B. Ciccone\*, A. Filla\*\*\*, G. De Michele\*\*\*, P. Vastarella#, G. Caruso\*. \*Dept. of Clinical Neurophysiology, University of Naples, Naples, Italy; \*\*Fondazione Clinica Del Lavoro, IRCCS, Campoli (BN), Italy; \*\*\*Dept. of Clinical Neurology, University of Naples, Naples, Italy; # Dept. of Clinical Ophthalmology, University of Naples, Naples, Italy

To assess the central nervous system (CNS) in mitochondrial myopathy (MM), evoked potentials were investigated in 17 patients with histologically defined MM. Our neurophysiological study included transcranial magnetic motor cortex stimulation (MCS), upper limb somatosensory evoked potentials (SSEPs), brainstem auditory evoked potentials (BAEPs), pattern visual evoked potentials (PEVs). Moreover, all the patients underwent electromyographic and peripheral nervous sensory and motor conduction studies.

Our results showed that visual and auditory pathways were involved in 58% and 62% respectively. The most frequent PEV and BAEP abnormalities were respectively a delayed P100 wave and a prolonged I-III interpeak latency.

Motor evoked potentials (MEPs) were abnormal in 3 out of 15 patients (20%) and SSEPs were abnormal in 1 patient.

Our data suggest that visual and auditory pathways are frequently involved in MM, while central motor and sensory pathways are only occasionally involved.

**50-06 Electrophysiological Findings in Hypothyroidism**G.F. Sau, I. Aiello, G. Delitala, P. Tomasi, A. Licheri, S. Traccis, M. Pastorino, P. Balsamo, G. Rosati. *Neurological Clinic, University of Sassari, 07100 Sassari, Italy*

Central and peripheral nervous system dysfunctions have been reported in hypothyroidism. Tiredness, lethargy, fatigue and memory loss are common and may result in anxiety and depression. Occasionally hypothyroid patients complain of limb paresthesias, and may have polyneuropathy, carpal tunnel syndrome and cerebellar dysfunction. Multimodal evoked potentials recording and magnetic stimulation of the motor cortex are used to identify clinical and subclinical involvement of central motor and sensory pathways and, to a certain extent, of peripheral nervous system. Therefore with the aim of studying central and peripheral nervous system involvement in hypothyroidism we recorded visual, auditory, somatosensory and motor evoked potentials, sensory and motor conduction velocity of the ulnar nerve in 20 adult onset hypothyroid patients before thyroid hormone therapy. Results showed no involvement of central nervous pathways, and a slight decrease in motor and sensory nerve conduction velocity.

**50-07 Continuous, Multimodal Neuromonitoring in Impending Brain Death**T. Shiohara, K. Takeuchi, I. Saito. *Kyurin University, Tokyo*

To clarify the diagnostic ambiguity in impending brain death caused by temporal discrepancies between neurological and/or electrophysiological loss of brain function and intracranial circulatory arrest because of the neuroradiological differences of brain damage, we analyzed 100 such cases from 203 consecutively neuromonitored and subsequently brain-dead patients evaluated by neurological findings and continuous, simultaneous neuromonitoring of somatosensory and brainstem auditory evoked potentials (BAEP, SEP), compressed spectral arrays (CSA), and transcranial Doppler sonography (TCD) in the middle cerebral artery.

A) In cases of supratentorial mass lesions: 1) Brain functions were preserved after supratentorial circulatory arrest (TCD) in a rostrocaudal direction — cerebral function (SEP N20 > CSA activity) > brainstem function (BAEP III-V > scalp SEP P13/14). 2) All patients demonstrated supratentorial circulatory arrest (TCD) after both neurological brain and electrophysiological cerebral (CSA) functions had been lost for more than 6 hours, or after neurological, cerebral (CSA), and brainstem (BAEP, SEP) functions had been lost. B) In cases of diffuse or infratentorial lesions, these trends were not obvious. Supratentorial circulation persisted in a few cases after neurological and electrophysiological loss of brain functions. C) The interval from supratentorial circulatory arrest to loss of brainstem function was longer than that to loss of cerebral function. Both intervals were less than 24 hours in almost all cases.

The final decision of brain death must be based on clinical criteria. Optionally, in cases of diffuse or infratentorial lesions, the results of ancillary studies should be given consideration.

**50-08 Diagnostic Imaging and Clinical Features of Anterior Bradyrythmia**N. Shiohara, S. Okada\*, M. Nagaoka, Y. Mizuno. *Department of Neurology, Juntendo University School of Medicine; \* Department of Psychiatry, Juntendo University School of Medicine*

The purpose of this study is to examine the clinical significance of Anterior Bradyrythmia (AB), which was proposed by Gibbs in 1964. AB represented 'paroxysmal very slow waves with a frequency of 2 to 5 Hz in the frontal areas', however, the criterion was not so definite that the term has not been generally used to date. We made the judgement of AB according to our new criterion with emphasis on the differential diagnosis from FIRDA, and evaluated the clinical significance of the EEG correlating the computed tomography (CT) and neurological findings of the patients studied. The