

Background: According to literature, the absence of bilateral cortical somatosensory evoked potentials (SEP) in comatose posthypoxic encephalopathy (PHE) patients correlates with poor prognosis (<1% chance regaining consciousness).

Aims: Confirm the prognostic significance of SEP in comatose PHE patients under university hospital intensive care conditions using bedside basal stimulation and physiotherapy.

Methods: Retrospective analysis of median nerve SEP was correlated with clinical data (GCS, survival) in comatose patients following cardiopulmonary resuscitation (CPR) for cardiac arrest.

Results: From the group of 24 patients, 9 SEPs could not be evaluated (SEP absent also over the peripheral nerve). The remaining 15 patients were analysed (7 males, 8 females, age 22–92 years, median 55, initial GCS 3, final SEP after CPR done between 2 to 19 days, median 8). Of the patients with bilateral absent N20 potentials (n=10) 3 showed improvement in GCS (by 6, 7 and 9 points), all 10 patients died (median survival 7 days, interval between 5 to 173 days). Among patients with bilateral N20 potentials present (n=4), 3 cases showed an improved in GCS (by 6, 6 and 8 points), 3 died between 23 and 66 days and 1 fully regained consciousness (GCS 15 points after 5 months). In a patient with N20 potentials present only over one hemisphere, GCS improved by 9 points but death followed after 28 days. A graphical representation of each type of SEP findings and their evaluation is presented.

Summary/Conclusions: Our results correlated with data from literature signalling a negative prognostic significance of bilateral absent cortical SEPs. Its absence, in this small group, indicated a greater chance of partial resolution of consciousness. In both groups, the patients did not survive generally due to extra-cerebral complications. The limiting factor in evaluating prognosis using SEP is the relatively high proportion that could not be evaluated (33.7%) due to various limitations (oedema, polyneuropathy).

Disclosure: No significant relationships.

Keywords: coma, prognosis, somatosensory evoked potentials, basal stimulation, posthypoxic encephalopathy

P-105

FEMORAL NEUROPATHY MIMICKING FOCAL MYOSITIS UNVEILED BY ULTRASOUND AND ELECTRODIAGNOSIS

M.W. Kim

Rehabilitation Medicine, The Catholic University, Incheon St Mary's Hospital, Incheon/KR

Background: Femoral mononeuropathy is usually associated with traumatic causes such as surgical procedures, direct injuries, stretch injury, and other external trauma. Whereas non-traumatic femoral mononeuropathy is uncommon and related with mainly spontaneous pelvic hemorrhage due to anticoagulant therapy, radiation injury, and rarely tumors of the iliopsoas compartment.

Aims: Here, we report a case with a femoral mononeuropathy caused by sarcoma of the iliopsoas muscle mimicking focal myositis, revealed by ultrasound and electrodiagnosis.

Methods: A case report with the electrodiagnostic study, ultrasound, CT, and magnetic resonance imaging.

Results: A 55-year-old man visited to orthopedic department with acute right anterior thigh pain. Magnetic resonance imaging of right thigh showed diffuse enhancement of vastus lateralis, vastus intermedius and vastus medialis muscle which was suspicious of an inflammatory myopathy or acute denervation injury. He was referred for the electrodiagnostic study at 1 month after symptom onset. He complained paresthesia on right anterior thigh and medial calf. Motor powers of right hip flexor and knee extensor were decreased. Nerve conduction study showed no response on the right saphenous nerve and right femoral motor nerve. On the needle electromyography, prominent abnormal spontaneous activities were observed in the right iliopsoas and vastus medialis muscle. Ultrasonography revealed a marked swelling of right femoral nerve and huge cystic mass below

the femoral nerve. Abdomen and pelvic CT showed 9.5*8.5*15.5 cm sized lobulating solid mass along the right iliopsoas muscle and enlarged lymph node on bilateral inguinal area. Gun biopsy showed a high grade fibrosarcoma. PET CT TORSO showed known FDG-avid malignant tumor in right iliopsoas muscle with multiple bone metastases and right lung metastatic nodule. Palliative chemotherapy was initiated. He expired at four months after symptom onset.

Summary/Conclusions: The electrodiagnostic study showed the possibilities of femoral neuropathy. However, we could not diagnosis of femoral neuropathy definitely through only the electrodiagnostic study. The ultrasonography immediately after the electrodiagnostic study showed the mass compression the femoral nerve. The ultrasonography should be considered as a complementary study for the electrodiagnostic study.

Disclosure: No significant relationships.

Keywords: femoral neuropathy, ultrasonography, electrodiagnostic study

P-106

THE LOCKED-IN PLUS SYNDROME

M. Seidl¹, A.B. Kunz¹, K. Schwenker¹, E. Trinkla¹, S.M. Golaszewski¹, F. Gerstenbrand²

¹Neurology, Paracelsus Medical University, Salzburg/AT, ²Karl Landsteiner Institute for Neurorehabilitation and Space Neurology Vienna, Paracelsus Medical University, Wien/AT

Background: Overview: There has been an intense discussion about the nomenclature and examination protocols of patients with disorders of consciousness and related syndromes, as the locked-in syndrome (LIS), in recent years. As the number of publications finding brain responses to different external stimuli – using fMRI or EEG – in these patients increases, we are in need of a diagnosis scheme which best fits to describe these patients. LIS plus (LIPS) is proposed as the diagnostic category for patients who show typical signs of LIS combined with disorders of consciousness.

Aims: To collect clinical and instrumental data of these patients to start with the development of a new classification for patients with LIS and LIS plus (LIPS).

Methods: Seven patients with pontine and other brain lesions following vascular injuries were examined clinically, with standardized behavioral assessment scales and with magnetic resonance imaging (MRI) and functional MRI.

Results: All 7 patients presented with different degrees of arousal, consciousness, and other neurological and behavioral symptoms. Additionally the extent of structural brain damage and brain response in fMRI was found to be variable in spread.

Summary/Conclusions: The relevant differences between a LIS and a LIPS lies on the one hand in the variety of additional extra pontine brain lesions, on the other hand in the symptoms presenting following these lesions: Frequently occurring features in LIPS are hypersomnia, frontal release signs, thalamic posturing of hand and/or feet. Rarely an akinetic mutism may be present. Extra pontine brain lesions may frequently occur in mesencephalic, thalamic and cerebellar brain structures. Also involvement of occipital, temporal brain regions is possible, depending on varieties of the vertebral-basilar artery blood supplying system. Due to the heterogeneity of the data collected a new diagnostic category should be implemented in clinical practice.

Disclosure: No significant relationships.

P-107

BRACHIAL PLEXUS ULTRASONOGRAPHY COMPLEMENTED ELECTRODIAGNOSTIC STUDY: CASE SERIES

M.W. Kim¹, K.W. Kim²

¹Rehabilitation Medicine, The Catholic University, Incheon St Mary's Hospital, Incheon/KR, ²The Catholic University, Seoul/KR

Background: Schwannomas are benign nerve sheath tumors and only about 5% of them are arised from the brachial plexus. Because schwannomas are rare, usually slowly growing with vague symptoms, they are not easy to be diagnosed. We experienced two cases of schwannoma of the brachial plexus, of which the ultrasonography detected the location with limited electrodiagnostic results.

Aims: Here we present two cases of Schwannoma of the brachial plexus, in which diagnostic ultrasound played an important role.

Methods: Two case series.

Results: Case 1: A 58 year old male presented with pain and tingling sensation on left clavicle region, left shoulder, medical side of upper and forearm for one month. On physical examination, there was no palpable mass, no weakness. He had a positive Tinel sign on left clavicle region. The electrodiagnostic study suggested left lower cervical radiculopathy mainly involving C8 and T1 nerve roots. However, the cervical MRI did not show any nerve compression. So we performed diagnostic ultrasound and there was a 2.2*1.8cm sized hypoechoic lesion inferior to midportion of left clavicle, which was suspected to compress nerve roots. Brachial plexus MRI showed nodular mass lesion arising from left brachial plexus, suggesting schwannoma. The tumor removal surgery was performed. In the surgical findings, a well marginated and firm mass pushing the brachial plexus was found. The histopathology of the tumor was consistent with schwannoma. Case 2: A 53 year old male presented with tingling sensation on left 1st, 2nd, 3rd and 4th fingers for about 2 years. On physical examination, there was no weakness or numbness. He had a positive Tinel sign on left axilla region. The electrodiagnostic study suggested median neuropathy. The ultrasound showed 3.7*2.1cm sized soft mass inferior to left clavicle, compressing brachial plexus caudally. The brachial plexus MRI showed mass lesion inferior to left mid clavicle suggesting schwannoma. The surgical removal was recommended but he refused surgery.

Summary/Conclusions: Ultrasonography of brachial plexus could be a complementary role of the electrodiagnostic study, and should be performed in suspicious electrodiagnostic cases.

Disclosure: No significant relationships.

Keywords: Schwannoma, brachial plexus, ultrasonography, electrodiagnostic study

(cSP) and to analyze the amplitudes of motor evoked potentials (MEPs), Transcranial Magnetic Stimulation (TMS) was used.

Methods: 33 subacute stroke patients were included (m=20; mean age =62.6 ys). Motor imagery consisted of two interventions in randomized order on different days. Intervention 1 comprised a computer-based Hand Identification Task (HIT); intervention 2 included repeated mental performance of the Box-and-Block Test (BBT), both with a duration of 30 minutes.

Cortical excitability as well as motor performance were measured before and after training. TMS was executed with a round coil, with electrical recordings from the Interosseus dorsalis I muscle on both sides during a tonic pinch grip. The hemispheres were stimulated one after the other, with a stimulus intensity of 130% of the resting motor threshold. Motor function was assessed using the BBT and a subtest of Jebsen Taylor Hand Function Test (JTHFT).

Results: Duration of cSP on the affected side was significantly shorter after training ($p < 0.002$), independently of the intervention. The cSP of the unaffected side didn't change: Neither did MEP amplitudes. Motor performance of the affected hand significantly improved after both interventions (BBT $p < 0.013$; JTHFT $p < 0.000$). After intervention 2, a significant correlation between the shortening of the cSP and the improvement of motor performance in the JTHFT was found for the affected hand.

Summary/Conclusions: Motor imagery reduced cortical inhibition on the affected side and improved motor performance, independently of the kind of mental intervention. Thus, to occupy oneself mentally with the hand seems to be more important than the specificity of the intervention. The correlation between reduced inhibition and improved motor performance suggests that an indirect fostering of excitability by reducing the activity of inhibitory neurons can improve motor function.

Disclosure: No significant relationships.

Keywords: silent period, transcranial magnetic stimulation, motor imagery, stroke

P-109

EFFECTS OF A COMPUTER-BASED COGNITIVE TRAINING ON FUNCTIONAL CONNECTIVITY OF MILD ALZHEIMER'S DISEASE.

F. Barban¹, L. Serra², R. Perri³, R. Annicchiarico¹, G.A. Carlesimo³, M. Mancini⁴, M. Cercignani⁵, F. Adriano⁴, C. Riccio¹, M.G. Lombardi¹, L. Fadda³, C. Caltagirone³, M. Bozzali²

¹Clinical and Behavioural Neurology, IRCCS Fondazione S Lucia, Rome/IT, ²Neuroimaging Laboratory, IRCCS Fondazione S Lucia, Rome/IT, ³Clinical And Behavioural Neurology - Department of System Medicine, IRCCS Fondazione S Lucia – University of Rome »Tor Vergata«, Rome/IT, ⁴Department of Engineering, University of Rome »Roma Tre«, Rome/IT, ⁵Brighton & Sussex Medical School, Clinical Imaging Sciences Centre, University of Sussex, Brighton/UK

Background: Computerized cognitive training₁ is a promising tool to delay the progression of the cognitive impairment that characterizes Alzheimer's Disease (AD).

Aims: The aim of the present study was to investigate, with resting state-fMRI, the effects of a computerized cognitive training vs. an active placebo condition on brain networks of patients in the early stages of Alzheimer's Disease (mAD).

Methods: The sample of this preliminary analysis comprised 19 mAD patients. They underwent a memory and executive functions training of 24 one hour-sessions, twice a week, and a placebo activity period with the same intensity and length. At each time-point mAD patients underwent an extended neuropsychological battery tapping mainly memory and executive functions and a neuroimaging protocol acquired on a 3T Siemens Allegra scanner, including an high resolution T1 weighted image (MDEFT) and 220 volumes of T2* weighted images (EPI) for resting state fMRI while participants kept their eyes closed, not thinking of anything in particular, and not falling asleep.

NEUROMODULATION, VISUAL, AND AUDITORY PERCEPTION

P-108

CHANGES IN CORTICAL INHIBITION AND MOTOR PERFORMANCE AFTER A SINGLE MOTOR IMAGERY TRAINING IN STROKE PATIENTS

I. Buesching, A. Sehle, J. Liepert

Lurija Institut für Rehabilitationswissenschaften und Gesundheitsforschung, Kliniken Schmieder Allensbach, Allensbach/DE

Background: Motor imagery has been used as a treatment in neurorehabilitation to improve motor performance after stroke. Little is known about the relationship between cortical excitability of the motor system and motor imagery training.

Aims: This study explored if motor imagery targeting the hand modulates cortical excitability and improves motor function of the affected hand. To measure changes in the duration of the cortical Silent Period

NEUROLOGIE & REHABILITATION

Organ der
DGNR
DGNKN
OEGNR
SGNR

Neuroprotektion | Neuroplastizität | Neurologische Langzeittherapie

Supplement 1 | 2015

ECNR 3rd European Congress of NeuroRehabilitation 2015

Vienna, December 1–4, 2015



ECNR European Congress
of NeuroRehabilitation 2015

Vienna

Abstracts

Oral Presentations

Posters