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Instrumental evaluation of the upper limb: Control data and aging effects

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Background.– No instrumental kinematic procedure for the assessment of the upper limb functional ability has been up to date defined for routinely-clinical use. The objective of this study is two-fold: first, to test the reaching and hand-to-mouth to sensitivity and reliability; second, to compare control data from young and elderly subjects.

Methods.– The reaching and hand-to-mouth [1] was applied to examine a group of 42 healthy subjects (18–80 years). Sixteen of them were reevaluated after 2 weeks to allow test-retest repeatability analysis. Besides kinematics repeatability and smoothness were also evaluated for motor control assessment.

Results.– Data show notable test-retest repeatability in all tasks. Significant differences are present between elderly and young subjects in the measures related to coordination, especially at low movement speeds.

Discussion.– The sensitivity of the method is demonstrated. The evidence of a selective coordination deficit for the elderly subjects is displayed consistently with the literature [2]. Test-retest repeatability is consistently confirmed to be high. The proposed method, combined with control data from healthy subjects, appears to be a suitable and reliable tool for functional routinely assessment.

References
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The relationship of expected and realized effects of low back pain therapy

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Keywords: Low back pain; Physical therapy; Treatment efficacy; Expectations; Pessimism

Background.– The treatment of low back pain is very complex and requires a multidisciplinary approach including the assessment of patients’ attitudes, beliefs, and the degree of optimism or pessimism regarding the effects of treatment.

Methods.– The study included 63 patients, 30 men and 33 women, treated for low back pain with standard physical procedures. Patients were at the start divided into two groups: the “optimistic” who expected recovery of over 50% and “pessimistic” group (50% or less). To evaluate the efficacy of treatment two questionnaires were used: Visual Analog Scale (VAS) and the Oswestry Disability Questionnaire (ODQ).

Results.– Before treatment the values of VAS and ODQ were not significantly different in the two groups. After completion of therapy the results were significantly better than before the treatment, especially in “optimistic” group.

Discussion.– The results after therapy were significantly better in both groups than before treatment. However, after the treatment in the “optimistic” group results were better than in the “pessimistic” group. It can be concluded that pessimism, in patients with chronic low back pain, may reduce the therapeutic efficacy and may also indicate the presence of negative psychosocial factors that need to be corrected or removed.

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Rehabilitation of a patient with Lewis-Sumner syndrome

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Keywords: Lewis-Sumner syndrome; Rehabilitation; Polyneuropathy; Upper limbs

Background.– Lewis-Sumner syndrome represents the asymmetric variant of chronic inflammatory demyelinating polyneuropathy. Its prevalence is 1 to 4 millionths. The characteristics combine distal, asymmetric weakness mostly affecting the upper limbs with sensorymotor impairment. The diagnosis is confirmed by EMG. There are few data available in the literature concerning the rehabilitation of these patients.

Results.– We received a 34-years-old patient whose symptoms began with fingers then upper limbs weakness, cramps, paresthesias with a disto-proximal progression. Physical examination revealed a complete areflexia of the upper limbs, with a deficit muscle testing. The patient received 8 weeks of rehabilitation including physical and occupational therapy, with an increase in intensity, frequency and duration. The outcome was very positive with improved quality of life.

Discussion.– With monthly immunoglobulin treatments, the rehabilitation program has contributed to the clinical improvement of the patient, and optimal recovery of physical and functional abilities.

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The diagnosis of carpal tunnel syndrome (CTS) in patients with persisting symptoms and a prior normal electrophysiological test, using the comparison of the median vs. radial digit I (thumb) sensory latencies

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Keywords: EMG; Carpal tunnel syndrome (CTS)

Background.– We used the comparison between median and radial thumb sensory latencies to detect CTS in patients with persisting symptoms in spite a previous “normal” (in recording from index sensory latencies 2.80–3.10 msec, very low but normal sensory nerve conduction and normal motor conduction, with a significant difference from the contralateral hand) electrophysiological test.

Methods.– In the last 12 month, 56 patients have been examined in our laboratory (54 females – 2 males, aged 28–80) that have persisting symptoms of CTS and a normal electrophysiological test. The median and radial nerves were stimulated at the wrist, with recording ring electrodes over thumb, using identical distances. The radial nerve was stimulated at the wrist along the lateral border of the radial bone. Using the same distance, the median nerve was stimulated in the usual location. Supramaximal responses were obtained at each stimulation site and the peak latencies were compared.

Results.– Fifty-three (94.6%) patients had a significance difference > 0.5 msec between median and radial sensory latencies stimulating at the wrist, confirming the diagnosis of CTS.

Discussion.– Strongly considering patient’s CTS relative symptoms, the diagnostic electrophysiology yield is highly increased using more sensitive techniques.

Further reading
Preston D, Shapiro B. electromyogr Neuromuscul Disord 2013.
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