CO46-003-e
The segmental exclusion of the hand: An example of the learned-non use phenomenon

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Keywords: Exclusion; Learned-non used

Objective—To study the behavior of digital segmental exclusion on the hand traumatized population and the consequences.

Material.—Interview (discomfort, pain, functional consequence), trophic review, joint, functional assessment of hand (sheet 400 points), body image (digital gnosis, praxis), electrophysiological investigations (PES, PES, PEC).

Patients and methods.—Thirty-three patients (mean age 43 years) where recruited during one year at the department of the hand surgery. The inclusion criterion was the presence of exclusion digital identified clinically. The original triggers were traumatic (for 2/3 of cases), infectious, RSDS, and simple immobilization.

Results.—The average installation of the exclusion period was 3 months. At the questioning, the exclusion was not seen initially. Topography dominated the index (50% of cases). The trophic review reported vasomotor disorders. Range of motion was normal in passive and active reduced. Achieving the sensitivity varied according to the lesions (paresthesia, dysesthesia, alldynia). Examination of the body schema reported the anosognosia exclusion in the initial phase and finger agnosia, the functional assessment (400 points) highlighted the exclusion tests manipulating objects. Measurement of cognitive evoked potentials (P 300) found a longer latency (331 vs. 405 healthy hand and pathological).

Changes at 1 year noted a decline in the exclusion of 12 patients (36.3%) and no recovery in 21 patients (63.7%).

Discussion.—Our study showed that the behavior of digital exclusion is a fast installation phenomenon and may not be initially perceived by the patient. It is associated with a limitation of active ranges of sensory disorders with cognitive functional impact.

The application of the model of “learned-non use” for interpreting the occurrence of the phenomenon of digital exclusion: the involvement of cortical reorganization and the compensatory motor pattern have like a clinical impact on the digital gnosis alteration of gnosis and the failure of the reuse attempts (incoordination, lack of strength, dexterity). Inactivity by lesion of the peripheral nervous system generates behavior modification unsuitable, similar to those observed in a central nervous system.

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Correlation of hand and foot force control and cervical spinal cord structure in cervicобrachial neuralgia

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Keywords: Cervicobrachial neuralgia; Diffusion tensor imaging; Fractional anisotropy

Objective.—We investigated early occurring force control deficits in cervicobrachial neuralgia (CBN) and related these changes to cervical spinal cord structure.

Patients and methods.—Twenty CBN patients and a group of control subjects of similar age were included. A visuomotor tracking task was used to measure force control at low absolute force levels (3, 6 and 9 N) in the precision of the hand and foot. Diffusion tensor imaging (DTI) and conventional T2-weighted MRI were performed to assess structural integrity of the cervical spinal cord. DTI parameters were extracted from the cervical spinal cord (C1-C5).

Results.—All patients presented cervical pain but few had other neurological symptoms. Groups were similar in clinical assessments of maximal grip strength and dexterity. Force tracking showed 35% greater error in both hand and foot tasks in patients compared to controls (P = 0.008). All subjects performed the hand task with less error compared to the foot task (P < 0.001). Mean release duration was longer in patients than in controls (133 ± 30 ms vs. 96 ± 34 ms, P > 0.001) and it was 30 times longer in the foot in both groups. DTI revealed lower mean spinal cord fractional anisotropy (FA) in patients compared to controls (0.50 ± 0.03 vs. 0.52 ± 0.03, P = 0.008). In patients, mean error during force tracking (hand and foot combined) correlated negatively with FA (r = -0.47, P = 0.04).

Discussion.—Force control deficits were found in CBN patients and it was related to reduced FA of the cervical spinal cord. These findings suggest that force tracking may be clinically useful in detecting and quantifying subtle alterations in the spinal cord structure in CBN, and that its treatment should integrate the lower limb.

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An analysis of the burden of musculoskeletal conditions in France

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Keywords: Musculoskeletal conditions; Burden; Prevalence; Health care resources

Objective.—To evaluate the overall burden of musculoskeletal conditions in the French population and its variation according to age, sex, and socioeconomic status.

Material.—National survey of the French adult population (N = 15,055) conducted in 2010.

Methods.—Prevalence of musculoskeletal conditions was assessed using a validated questionnaire. The burden was estimated using the disability-adjusted life years (DALYs) approach.

Results.—The overall burden of musculoskeletal conditions was 10.8 DALYs per 1,000 inhabitants. The burden was higher in women (13.2 DALYs) than in men (8.5 DALYs). The burden increased with age, with a peak at 60-69 years (16.7 DALYs). The burden was also higher in lower socioeconomic groups (14.0 DALYs) than in higher socioeconomic groups (9.0 DALYs).

Discussion.—The burden of musculoskeletal conditions is a significant public health problem in France, with a higher burden in women, older adults, and lower socioeconomic groups. These findings highlight the need for targeted prevention and management strategies to address this issue.