Keywords: Visual hallucinations; Cortical blindness; Peduncular hematoma

Introduction.– Visual hallucinations are common across a range of neurologic or psychiatric disorders [2]. They can occur in the context of eye disease or after a lesion affecting the visual pathways associated with or without visual field defect. If they have poor localising value [1], both topological and hodological factors can account for visual hallucinations [3,4]. Their assessment and management are important to improve the quality of life of patients. Observation.– We report the case of a 76-years-old right-handed woman presenting with visual hallucinations and cortical blindness after a right peduncular hematoma caused by a ruptured aneurysm of the terminal part of the basilar artery. She had vivid and coloured visual hallucinations during day and night and some elements of prosopagnosia. She did not criticise them but she was not scared by them. Neuropsychological examination revealed difficulties for elaborated language and executive functions whereas verbal memory was preserved. Perceptual and visual mental imagery were impaired. Visual field assessment revealed a very restrictive tubular vision for both eyes. Rehabilitation was largely experimental and consisted in helping the patient to be aware of her hallucinations and to reassure her, in training eye-hand coordination, in developing visual search strategies, in recognising drawings, reading and writing. Progressively, hallucinations became criticised by the patient and cortical blindness partly improved. Tubular vision remained unchanged 3 years after stroke.

Discussion.– Different diagnostic hypotheses have been discussed for this case, showing the complexity for linking visual hallucinations to a particular dysfunction within the visual circuitry. A better understanding of the mechanisms underlying hallucinations is critical in order to improve the clinical care of these patients [2].

References

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P059-e

Evolution of paretic shoulder kinematics after stroke: Comparison of scapular kinematics during sub-acute phase

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Keywords: Stroke; Scapula; Kinematic; Upper limb

Introduction.– Limitation of the range of motion of the shoulder is a secondary deficiency that have been previously described and related to shoulder pain in stroke patients. It may lead to a limitation of the functional use of the upper limb. The delay for such modifications is of importance to define the best rehabilitation strategies for the prevention.

Purpose.– The main objective of this study is to characterize scapular kinematics modifications from the first month to sixth month post stroke.

Methods.– Ten patients and ten matched control subjects were included in a consecutive series. The clinical status of stroke patients was assessed at 1, 3 and 6 months post stroke with Fugl Meyer scale (upper limb part) and the scapular motion was measured during passive elevation (flexion and abduction from 0° to maximal amplitude) of the upper limb by a Vicon motion analysis system.

Results.– Significant differences between the three assessments have been observed in both movements for patients for the external and lateral rotation of the scapula. Comparison between subjects and controls revealed significant differences at all stages for both movements of external and lateral rotation but not for posterior tilt of the scapula. The Fugl Meyer assessment improved significantly from a mean value of 20.9 at M1 to 46.6 and was not correlated to the scapula limitation.

Conclusions.– Restriction of scapular mobility appears in the first weeks after stroke. Despite significant differences observed after months, this impairment seems limited regarding the important difference in mobility observed between normal and hemiplegic subjects. Specific rehabilitation program oriented to improve scapula mobility may change the motor deficiencies observed in stroke subjects.

Further reading

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P060-e

Comparison of two accelerometers in walking and non-walking individuals with stroke in medicine and rehabilitation service

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Keywords: Accelerometry; Stroke; Physical medicine

Objective.– Accelerometry appears to be a reliable method for measuring physical activity in stroke walking patients [1]. However, the monitoring of activity in non-walking patient is not approached. We therefore propose to compare two accelerometers in a stroke population, walking and non-walking in hospital.

Patients.– Forty-eight patients (14 walking 34 non-walking; 64.6 ± 19.3 years; Barthel Index: 55.7 ± 24.6) stroke (period post-stroke: 46 ± 31.4 D) in medicine and rehabilitation service at Jean Rebeyrol hospital in Limoges.

Patient and methods.– Each patient wore two accelerometers (Movilis, Srett. Worn on hip; SenseWear Armband, Bodymedia. worn on non-paretic arm) during two consecutive days from 9 am to 16 30 pm, corresponding to the time of classic rehabilitation. The information collected by the sensors were, for Armband, energy expenditure (kcal) and the number of steps, and for the movilis, energy expenditure (Kcal) and walking time (min).

Results.– In the walking population, energy expenditure recorded by both sensors were significantly correlated (r=0.673, P < 0.001). In contrast, for patients in wheelchairs, there was no correlation (r=0.179, P = 0.246).

Similarly, on walking patients, a correlation between the number of steps recorded by the Armband and the time of walk of Movilis (r = 0.787, P < 0.01) was observed. However, for patients in wheelchairs who walked in physiotherapy, no correlation was observed (r = -0.68, P = 0.66).

Discussion.– In walking patients post-stroke, the results of the two accelerometers on energy expenditure and walking activity are well correlated. Nevertheless, the fact that we did not find any correlation in wheelchair-patients shows that accelerometers are perhaps not suitable for this population. This could be explained by the difference in the placement of the accelerometers.

Reference

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P061-e

Transcranial direct current stimulation improves function for stroke patients with pure motor neglect: A case report

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Keywords: Stroke; Stimulation; tDCS; Motor neglect; Rehabilitation

Significant differences between the three assessments have been observed in both movements for patients for the external and lateral rotation of the scapula. Comparison between subjects and controls revealed significant differences at all stages for both movements of external and lateral rotation but not for posterior tilt of the scapula. The Fugl Meyer assessment improved significantly from a mean value of 20.9 at M1 to 46.6 and was not correlated to the scapula limitation.

Conclusions.– Restriction of scapular mobility appears in the first weeks after stroke. Despite significant differences observed after months, this impairment seems limited regarding the important difference in mobility observed between normal and hemiplegic subjects. Specific rehabilitation program oriented to improve scapula mobility may change the motor deficiencies observed in stroke subjects.

Further reading

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Pure motor neglect (MN) was described as an under-utilisation of one side, without defects of strength, reflexes or sensibility [2], following a brain lesion. MN physiopathology remains under debate; among the proposed mechanisms, internhemispheric imbalance following a stroke has been suggested [3]. Non-invasive brain stimulation techniques (tDCS: transcranial Direct Current Stimulation, and rTMS: repetitive Transcranial Magnetic Stimulation) could have a beneficial effect on this imbalance [1].

A right hemisphere stroke patient with a pure motor neglect of the left forelimb, who was functionally stable 5 months after the ictus, benefited from ten tDCS sessions (inhibition of the healthy hemisphere) during classical rehabilitation (motor and functional training). In order to evaluate the intervention effectiveness, repeated assessments of upper limb function were performed with validated tests (Jebsen Taylor Test, Purdue Pegboard Test, Motor Activity Log). Monomanoal and bimanual dexterity durably improved. Subjective assessment with the MAL of the use of the left upper limb was stable before the intervention; it significantly and durably improved after the intervention: MAL – Amount of use – 1.9 at pretest, 3.5 at posttest (P = 0.003), 3.9 after 3 months; MAL – quality of movement – 2.1 at pretest, 4 at posttest (P = 0.0004) and 4.4 after 3 months).

This case report reports the efficiency of an inhibitory stimulation of the healthy hemisphere in a case of pure motor neglect after stroke. To our knowledge, it is the first description of functional improvement in pure motor neglect achieved by non-invasive brain stimulation associated to conventional rehabilitation.

References

[3] Punt TD, Riddoch MJ. Motor neglect: implications for movement and gait analysis. Among 140 patients admitted for stroke, 78 patients (33 women) were included. Haemorrhagic stroke represented 24.4%. Mean age was 62.1 ± 17.7 years. 70.5% of patients had hypertension, 29.4% diabetes, and 23.6% chronic renal failure. Mortality rate was 29.4% and recurrence rate 2.6% one year post stroke. We evaluated 39 of 55 survivors (71%). Scale evolution (emergency vs. one year later) was: NIHSS 6.2 ± 4.9 vs. 3.3 ± 3.9 (P < 0.001), mRS 2.2 ± 1.6 vs. 2.1 ± 1.8 (P = 0.467), FIM 103.2 ± 28.2 vs. 101.7 ± 31.5 (P = 0.313), Body Mass Index (BMI) was significantly higher (+ 2.3 kg/m²). In multivariate analysis, apathy, hemianopia and incontinence significantly influenced one year FIM scale (P < 0.001). Quality of life was altered.

Conclusion. – One year after a first stroke, despite a significant improvement of neurological handicap, the level of dependence was stable and quality of life altered. These data must be taken into account in the development of the socio-professional projects after a stroke. They encourage seeking anew rehabilitation approach for hemispheric stroke.

Further reading


Effect of 1 Hz repetitive transcranial magnetic stimulation of the unaffected hemisphere on gait in chronic hemiplegic stroke patients

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Keywords: tRMS; Stroke; Hemiplegia; Walking speed

Introduction. – Repetitive transcranial magnetic stimulation (rTMS) has become a routine therapeutic tool in the field of motor pathologies. rTMS has been shown effective on the upper limb function in stroke patients. However, its effect on gait in this population has been little investigated.

Patients and methods. – A pilot, prospective, randomized, double-blind, controlled study (1200 pulses of rTMS on the primary motor cortex of the unaffected hemisphere vs. sham stimulation on 5 consecutive days, crossover design) was performed, including ten chronic stroke patients with hemiplegia. The primary outcome measure was the 10-m walking speed. The secondary outcome measures assessed impairments (Fugl-Meyer score, Ashworth scale, and gait analysis parameters), disabilities (Frenchay Arm Test, 6-minute walking test, functional independence measure score), quality of life (SF-36 questionnaire) and satisfaction.

Results. – No effect of the rTMS was found concerning the primary outcome measure (10-m walking speed). Among the secondary outcome measures, the sole significant change was a diminution of the percentage of double-limb support observed by gait analysis.

Discussion. – This study does not argue for the efficiency of 1 Hz rTMS of the primary motor cortex of the unaffected hemisphere on gait in chronic stroke patients. The diminution of double-limb support duration after rTMS could be related to an improvement balance and motor control.

Effect of cortical repetitive transcranial magnetic stimulation on oropharyngeal dysphagia in Wallenberg syndrome

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Introduction. – Swallowing problems are very frequent in Wallenberg syndrome. In these patients, the paralysis of the IX and the X cranial nerves, often unilateral, could compromise swallowing efficiency for a long term. This need for the patient to have an exclusive feeding with a gastrostomy for many years. The aim of our study was therefore to test the effect of cortical repetitive transcranial magnetic stimulation (rTMS) to improve oropharyngeal dysphagia in these patients.

Method. – Three patients were studied. Swallowing function was explored by pharyngeal high-resolution video manometry before and after each session of rTMS. There were three sessions of rTMS spaced by 6 months. Each rTMS session consisted in 20 minutes of 1 Hz frequency cortical stimulations on the pharyngeal motor cortex, 10 minutes on each hemisphere. During the rTMS session, the patient was instructed to swallow during the stimulation.