Heart rate was comparable in the two conditions (94.3/min on the ground versus 92.5/min in the water, t=0.78, P = 0.45). The speed in the water (17.58 ± 4.9 m/min) was correlated with speed on the ground (38.4 ± 16.2 m/min) and on average 2 slower times. In the water, both the length of the step and the cadence decreased, excepted for 3 patients. Length of step were correlated in water and ground but not the cadences, perhaps because of different adaptations to water resistance. Six patients presented a defect of control of the hemiplegic limb with difficulty returning it towards the ground and 3 lost the posterior step. The step was more difficult in the water with dynamic equinus. After stroke, aquatic walk can’t be assimilated with gait with body weight support because of multiples factors (water resistance, energy, spasticity . . .) with probably different adaptation to water resistance.

Further reading

P039–EN
Interest of a self-care program associating trançutaneous electrical nerve stimulation and mirror visual feedback in the treatment of ankle complex regional pain syndrome (CRPS-1)
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Keywords: Complex regional pain syndrome; Self-care program; Transcutaneous electrical nerve stimulation; Mirror visual feedback

Background.– Taking care of CRPS-1 is not consensual and often invasive. We assessed a multidisciplinary, not invasive protocol, based on the therapeutic education of the patient.

Objectives.– To determine the benefit of trançutaneous electrical nerve stimulation (TENS) and mirror visual feedback (MVF), managed by patients themselves, in ankle CRPS-1.

Methods.– We realized a forward-looking and multicentric assessment. The patients (n=26), included on a duration of 3 months, presented a CRPS-1 of ankle, in agreement with the criteria of the IASP with a contributive bone scintigraphy. Our main assessment criterion was built around the therapeutic objective (s-GAS). Other criteria were: gate duration, Wade test, single leg stance load, VAS, clinical data.

Results.– After 6 months, 20 patients had reached the fixed objectives. Sixty-nine percent of them (n=18) found an improvement of the locomotion.

Conclusions.– Literature evoke 68% of healing of the CRPS-1 at 11 months, invasive program included. In this assessment, self-care program of patients educated to TENS and MVF, displayed 65% (n=17) of healing at 3 months and 77% (n=20) at 6 months.

Further reading

P040–EN
Construct validity of the French version of the PRWE (Patient Rated Wrist Evaluation) with the French version of the DASH (Disabilities Arm Shoulder and Hand) is good to very good in a population of patients with wrist injuries in an inpatient rehabilitation unit
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Keywords: PRWE questionnaire; Wrist; Construct validity

Objective.– The Patient Rated Wrist Evaluation is a specific questionnaire for the wrist [1]. It consists of 15 questions with a total score of 100. It was recently translated into French [2]. However, its validity has not been tested in this language. The Disabilities Arm Shoulder and Hand (DASH), with well-established psychometric properties, is considered as the reference questionnaire for the evaluation of upper extremities. The objective of this study is to measure the construct validity of the PRWE-F with the DASH-F in patients with wrist pathology.

Patients and methods.– Fifty-one patients (40 m, 11 w, mean age 42 years), 25 fractures of the radius and 26 lesions of the carpus.

Questionnaires PRWE-F and DASH-F at entry and at discharge (0 to 100). Calculation of the construct validity of the PRWE-F comparing with the DASH-F with Pearson correlation coefficients (r) at entry and at discharge. Level of significance (alpha) was set at 5%.

Results.–– Correlation DASH/PRWE at entry: r=0.799 (95% CI 0.671 to 0.881), P < 0.0001. Correlation DASH/PRWE at discharge: r=0.847 (95% CI: 0.745 to 0.910), P < 0.0001.

Discussion.– The construct validity of the two instruments indicates that they measure the same concept. Our correlation between DASH-F and PRWE-F, going from 0.799 to 0.847, are comparable to those published in different languages (0.71 to 0.84) [3,4]. The questionnaires PRWE-F can thus be used in rehabilitation patients presenting with wrist pathologies; it is comparable to the DASH but described by MacDermid [1] to be more specific. Compared to the DASH it has the advantage of consisting of two dimensions. Its construct validity is excellent. This questionnaire should be evaluated in other populations, and it should be compared with hand questionnaires more specific than the DASH.

References
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P041–EN
Post-stroke fatigue
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Keywords: Fatigue; Stroke; MFI-20

Objective.– Post-stroke fatigue is a common symptom that can be disabling; however, it has not been a subject of extensive research. The aim of the present study was to determine the different domains of fatigue occurring after stroke and to identify possible predictor factors of post-stroke fatigue.

Patients and methods.– Thirty consecutive patients meeting inclusion criteria who were admitted for inpatient rehabilitation to a specialized unit following their first stroke were evaluated. Inclusion criteria were: the occurrence of a
single stroke at least 12 months previously, with recovery of Indoor walking and home return. Fatigue was assessed by a multidimensional scale, the MFI-20 which allowed determining the fatigue level in its four dimensions (general fatigue, mental fatigue, reduced activity and lack of motivation). We examined possible associations between the level of fatigue in each of its dimensions and different parameters related to the patient (age, sex, body mass index), to the brain injury (etiology, side, duration), and to other stroke complications (motor deficit, disability level, anxiety, depression, sleep disturbance and pain). Disability was determined by the Barthel Index score. Anxiety and depression were assessed by the HAD scale.

Results.— The different domains of fatigue identified by the MFI-20 were present at equivalent levels in the patients without predominance of one domain over the others. “General fatigue” and “mental fatigue” were strongly correlated with anxiety and depression. “Lack of motivation” was correlated with sleep disturbance (P = 0.047) and with depression (P = 0.047). “Reduced activity” was correlated with anxiety (P = 0.02). On the other hand, there were no significant correlations of the different domains of fatigue with the other parameters studied.

Conclusion.— Post-stroke fatigue is multidimensional. Some comorbidities (depression, anxiety, sleep disorders) that are accessible to treatment are associated with a higher risk of fatigue in each of its dimensions.

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P042–EN
Evaluation of walking speed (10 m walking test) in patients with chronic hemiparesis after at least 3 consecutive botulinum neurotoxin injections while patients follow a guided self-rehabilitation contract
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Keywords: Hemiparesis; Botulinum neurotoxin; Guided self-rehabilitation contract

Objective.— Evaluation of walking speed (10-m walking test) in patients with chronic hemiparesis after at least 3 consecutive botulinum neurotoxin injections while patients follow a guided self-rehabilitation contract.

Design.— Open label trial.

Setting.— Outpatient rehabilitation center.

Patients.— Fourteen patients with chronic hemiparesis (mean 52 months post-stroke) consecutively treated with at least 3 BTX injections, while following a guided self-rehabilitation contract.

Intervention.— Guided Self-Rehabilitation Contract involving prolonged daily stretching postures and exercises of rapid alternating movements of maximal amplitude, in combination with 3 consecutive injections of botulinum neurotoxin (onabotulinumtoxin A, abobotulinumtoxin A, incobotulinumtoxin A or rimabotulinumtoxin B) in selected lower limb muscles (plantar flexors, rectus femoris) during a 9-month period.

Main outcome measures.— Comfortable and maximal barefoot 10 m walking speed was assessed 6 times during a 9-month period (mean pre-post injection delay 40 days; mean post/pre-assessment delay 71 days). A multivariable analysis was performed to test the effects of Visit and status pre/post-injection as predictors of walking speed variations.

Results.— Overall, comfortable barefoot walking speed increased by 49 ± 14% (mean ± SEM, P < 0.001) in the 9-month period, while maximal barefoot walking speed increased by 65 ± 13% (mean ± SEM, P < 0.001). While the first injection improved comfortable walking speed by 9.9% (P = 0.019) and maximal walking speed by 16.5% (P < 0.001), this injection-induced effect waned in subsequent injections. Overall, the factor Visit (passage of time) was a predictor of walking speed variations (P < 0.001) while the status pre/post injection was a predictor only for the maximal speed. At baseline, maximal walking speed was a predictor of subsequent walking speed variations (comfortable, P = 0.024; maximal, P = 0.006), unlike comfortable walking speed.

Conclusion.— Against common knowledge [1], stroke patients may meaningfully improve walking speed in chronic stages once BTX injections are associated with an appropriate neurorehabilitation program, such as a guided self-rehabilitation contract.

Reference

P043–EN
Perception of action by stroke patients in virtual realities using minimal kinematic displays
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Keywords: Stroke; Perception of action; Kinematic cues; Virtual reality

Objective.— The aim of the present research is dual-fold: first, to provide a better understanding of perception of action by stroke patients; second, to gain more insight about which kinematic cues are relevant for action recognition in virtual displays.

Method.— To do so, naive stroke patients and an aged matched healthy control group had to assess the level of attainment of pointing movements displayed on a computer screen. Two different kinematic displays were used: a stick diagram and a dot end-point representation. The displayed movements were from patients with very severe, severe, moderate and mild hemiparesis, or healthy subjects.

Results.— It was shown that stroke patients were able to distinguish between healthy and several attained movement trajectories by observation of minimal kinematic displays, although with a larger variability than controls. Subsequently, patients succeeded better in doing so when observing an end-point dot representation. It was assumed that the observation of the end-point trajectory directed their attention to the strongest affordances: smoothness, indicated by the number of velocity peaks, and form of the trajectory, indicated by the curvature index.

Discussion.— These findings should be taken into account when implementing avatars in virtual reality (e.g., constructing serious games) for upper-extremity stroke rehabilitation, in order to make sure that the moving avatars provide neither too little, nor too much information to the attained observer.


P044–EN
TLS-Coping. A new validated short and specific coping scale in multiple sclerosis
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Keywords: Multiple sclerosis; Scale; TLS-Coping10

Patients.— Suffering from multiple sclerosis (MS) resort to a coping strategy deeply modifying their general perceived Quality of life (QoL). Coping and QoL assessments are essential to implement appropriate behavioral cognitive therapy programmes. However, the currently validated Coping with Health Injuries and Problems (CHIP) scale has poor reliability in MS Context.

Objective.— To validate a short and specific coping scale Two-Lives Scale: TLS Coping 10:
– easy to use and easy to score in routine medical practice;
– to bring out the link between the respective coping and QoL scores.

Patients and methods.— We conducted a multicenter cross-sectional study of 521 consecutive MS patients. We used the CHIP, MOS-SF36 scales and TLS coping scale.