CO35-003-e

Rehabilitation of tenodesis grasp using motor imagery in C6 quadriplegic patients

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Keywords: C6 tetraplegia; Prehension; Rehabilitation; Motor imagery; Tenodesis grasp

Introduction.– Prehension movements are dramatically disturbed following C6 tetraplegia. Nonetheless, recovery of a modified prehension (tenodesis grasp) is achieved using wrist extensor muscles respectively leading to a passive finger closure (whole hand grasp) and to a passive thumb flexion against the forefinger (lateral grasp) (Mateo et al., 2012). Learning of the tenodesis grasp is a main functional objective in rehabilitation. In a single case study, Grangeon et al. (2012) demonstrate that adjunction of motor imagery practice to classical rehabilitation promoted this learning. The aim of this study (PHRC No. 2009-A01006-51) was to validate this hypothesis in a series of six C6 tetraplegic patients and six healthy control match subjects.

Material and method.– C6 tetraplegic patients had on average 30.3 ± 8.2 years, and were included after on average 13.7 ± 8.8 months with an ASIA motor score 23/100 ± 6.8, a MRC manual muscle testing of wrist extensor 5/5 and a Frankel A in 3 patients and B for 3 patients. Motor imagery prehension movements were performed over a 5-week period with one-hour session three times a week. Three pre-test, an immediate post-test and a second delayed post-test (2 months later) composed the experimental procedure. Kinematics recording of an apple reach-to-grasp movement and pointing movement was performed using an optoelectronic device (Vicon). Range of wrist extension and trajectory variability was the kinematics parameters studied.

Results.– In the reach to grasp movement, C6 tetraplegic patients showed an increased wrist extension in both immediate and delayed post-tests. Reduction of the trajectory variability during the deceleration of the transport phase was observed in 3 patients. Moreover in the pointing movement, reduction of variability of kinematic parameters indicates an improvement generalization following motor imagery practice.

Discussion.– These results confirm in a series of cases that motor imagery practice is an additional rehabilitation method to classical rehabilitation for the learning of new motor skills in tetraplegic patients.

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Effects of the introduction of a consensual medical-surgical protocol of care governing haemorrhoidectomy in spinal cord injured patients

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Keywords: Spinal cord injury; Haemorrhoidectomy; Healthcare protocol

Objective.– Digestive dysfunctions are common in spinal cord injured patients (SCIp), with a significant impact on their quality of life. Defecation difficulties often lead to an extended time daily for stools exemption. This is one of the causes of development of an hemorrhoidal disease in this population. The objective of this study was a comparison of the management before and after the implementation of a healthcare protocol governing the postoperative period that was entirely performed in a PRM department.

Patients and methods.– Retrospective monocentric study carried out from the medical file of SCIp who were hospitalized in the neurological PRM department of Nantes’ University hospital and who underwent an hemorrhoidectomy between March 2007 and March 2013. Anamnensis, clinical neurological examination, course of the hospitalization (duration of bed confinement and stay, type of surgery, complications) and follow-up were recorded. They were compared according to the period of introduction of the protocol.

Results.– Thirteen patients were studied, 5 pre (Pp) and 8 subsequent (Up) to the implementation of the protocol. Hospitalization duration was similar between the two groups. In the Pp group, two presented a major hemorrhagic episode while none occurred in the Up group. The relationship between patients and the healthcare team has been improved by the clarification provided by the protocol. “Up group” patients always sat back in their wheelchair beyond the 10th day and the resumption of a controlled transit was the determining factor for discharge.

Discussion.– The indication of an hemorrhoidectomy in SCIp remains cautious. The epidemiology is ill-defined despite the impact of digestive disorders in this population. In the context of a spinal unit of the University Hospital of Nantes, surgery is organized as a medical-surgical network which led to the writing of a consensual protocol between proctologists and rehabilitation physicians. Besides the supervision of bedridden patients and then reinstallation in their wheelchair, the two main objectives of this protocol were monitoring the risk of bleeding by the eschar fall period and management of laxative treatments. This
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Stress incontinence predictive factors after sacral posterior roots rhizotomy

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Keywords: Rhizotomy; Sacral anterior roots stimulation; Brindley; Stress incontinence; Spinal cord; Paraplegia; Urology

Background.– The Brindley procedure consists of the implantation of a sacral anterior-roots stimulator (SARS) combined with a sacral defaerentation (SADF). This technique enables to restore an implant driven complete micritution in patients with supracranial lesions with an intact sacral reflex arc. SADF abolishes neurogenic detrusor overactivity (NDO) but also reflex contraction of the striated urethral sphincter during effort and a decrease of urethral pressure. This may lead to stress incontinence [1].

Aim.– To estimate the prevalence of stress incontinence one year after SADF and to examine potential predictive factors of occurrence of post-operative stress incontinence.

Material/Patients.– Hundred and twenty-four patients with suprasacral SCIs and implanted with a Finetech-Brindley stimulator were included. This is a retrospective and descriptive study, setting in two French centers specialized in the treatment of SCI and SARS implantation (Rehabilitation Centre of L’Arche, Le Mans and Department of Physical and Rehabilitation Medicine, University Hospital of Nantes).

Method.– Seven potential predictors were examined: age at surgery, sex, level T10-L2, previous urethral surgery (sphincterotomy, cervicotomy or prostatectomy), independent transfers, maximum urethral closure pressure (MUCP) before surgery less than 30 cmH20, bladder compliance before surgery less than 30 mL/cmH20.

Results.– One year after the surgery, 9,7% of them had a stress incontinence. Before surgery, 91,1% of them had ulcer incontinence. Univariate analysis indicated no significant predictive factors of stress incontinence: age at surgery (P = 0,164), sex (P = 0,177), level T10-L2 (P = 0,136), previous urethral surgery (P = 0,519), independent transfers (P = 0,172), MUCP before surgery less than 30 cmH20 (P = 0,657), bladder compliance before surgery less than 30 mL/cmH20 (P = 0,332).

Interpretation/Conclusion.– Our study did not reveal predictive factors of stress incontinence after SADF. This may be due to the few number of patients with potential predictors who underwent the procedure. The screening of patient undergoing Brindley procedure is crucial to aim an optimal post-operative result. From this study, we propose a preoperative check-up to select the population of patient that may benefit from Brindley procedure.

Reference
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Therapeutic education in spinal cord dysfunction or multiple sclerosis patients with pressure ulcer: Raymond-Poincaré’s hospital experience


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Keywords: Pressure ulcer; Therapeutic education; Individual or group program; Spinal cord dysfunction; Multiple sclerosis

This program is managed by an interdisciplinary team with doctors, nurses, caregivers, physical therapists, occupational therapists, psychologist, secretary, dietician, welfare worker.

Validated by ARS in 2010, this TPE [1] program focuses either on neurologic patient with pressure ulcer or in secondary prevention [2].

Raymond-Poincaré’s hospital organizes a pressure ulcer consultation and also a specific day hospital. Beside our TPE team, our multidisciplinary consultation includes an infection diseases specialist and a surgeon. Patients can be hospitalized in the unit for a complex medical check-up, also we work in collaboration with other TPE programs in the hospital (wheelchair/transanal irrigation/self-catheterization).

The number of patients seen for pressure ulcer is stable since 2010 turning around 200 patients per year. Two thirds of them are in controlled wound healing and one third received specialized surgery. Within those 200 patients, 45 were affected in TPE in 2011 and 84 in 2012. There are more spinal cord injuries than multiple sclerosis. For 95% of the cases, the patient is directly concerned and in 5% it is his caregiver. Most of the sessions are individual education, some collective workshops can be proposed. The main themes of the sessions are by order of frequency: self-care/knowledge and skills/supports-positions/dietary competences/social support/psychological care-lived experience. Despite the classical documents (charter of ethics, information to patients), different specific ETP tools have been created; specific ETP records, information booklet, power point, patient satisfaction questionnaire, educational playing cards. . . . We use OVET software.

The specificity of this program is to take in charge patients having a severe neurological disability. Most of them are dependant, living far from the hospital. All these points lead us to a fitted organization of the structure with the aggregation of individual sessions.

Références
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Fertility preservation in spinal cord injured men

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Keywords: Spinal cord injury; Fertility

Introduction.– Spinal cord injured (SCI) men most often have an infertility because of ejaculation disorders and impaired sperm quality. Sperm cryopreservation is the best modality to ensure future fertility for these SCI patients.

Materials and methods.– The retrospective medical records of 32 SCI patients who came at the Reims hospital CECOS, between 1995 and 2012 were studied. In each case, we analysed the use of assisted techniques (penile vibratory stimulation, transrectal electrostimulation or surgery), type of sperm collection (antegrade, retrograde, tissue), semen parameters, the time between the injury and the sperm cryopreservation, the use of Assisted Reproductive Technology (ART) and the results.