R0617 Rehabilitation and reorganisation after stroke

ECOLOGICAL TEST OF SAN PELLEGRINO TERME

G.P. SALVI[1], A. QUARENGHI[2], L. MANZONI[3], L. SMIRNI[4], M.G. INZAGHI[5], M. SIMONINI[6], E. ANCONA[7], F. TOGNI[8]

ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[1], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[2], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[3], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[4], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[5], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[6], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[7], ISTITUTO CLINICO QUARENGHI - Neurorehabilitation Ward, San Pellegrino Terme, ITALY[8]

BACKGROUND
Our ecological test evaluates evolution of motor, cognitive and behavioural abilities in patients affected by stroke and then personalize rehabilitation strategies.
METHODS
We tested 100 people, 80 men(mean age 40)and 20 women(mean age 45)affected by ischemic(67)or haemorrhagic stroke(13).Each patient had physiatric, neurological and neuropsychological evaluation. The test is based on 10 activities: walking on sidewalk; Crossing the street at pedestrian cross; Crossing the street at a traffic light; Asking people for pieces of information; Changing money at the bank; Ordering something to drink at the pub; Writing/sending postcards; Buying newspaper; Phoning from call box or using a mobile phone; Shopping. We used score from 0 (the activity is not carried out) to 3 (the activity is carried out correctly without help). During the test the staff will focus the attention on possible cognitive problems.
RESULTS
We achieved a better overall evaluation of our patients; better consciousness of the patients and their relatives about the difficulties to carry out everyday activities. Patients can also process right strategies in order to recovery their independence in ADL. The test shows emotional and behavioural disorder: 40% of our sample has shown behavioural and cognitive disorders and 60% has shown movement disorders (balance disorders, upper and lower limbs motion); 15% of our sample had better results during our ecological test of S.Pellegrino rather than during standard neuropsychological and gym training.
CONCLUSIONS
The test can be defined “ecological”: it involves everyday life activities outdoor; it’s easy to use and it can be done weekly; it shows the learning abilities and it records improvements. It completes both the training in the gym and the cognitive training carried out during the occupational therapy because it helps to verify whether the goals are achieved and it also gives useful advices to patients’ relatives when they will back home again.

R0618 Rehabilitation and reorganisation after stroke

Feasibility of peak cardiopulmonary performance testing using a robotics-assisted tilt table in dependent-ambulatory stroke patients

J. Saengsuwan[1], C. Huber[2], J. Schreiber[3], C. Schuster[4], M. Laubacher[5], T. Nef[6], K.J. Hunt[7]

1. Bern University of Applied Sciences 2. Bern University 3. Reha Rheinfelden, Burgdorf, SWITZERLAND[1], 3. Reha Rheinfelden 4. University of Basel, Basel, SWITZERLAND[2], 3. Reha Rheinfelden 4. University of Basel, Basel, SWITZERLAND[3], 1. Bern University of Applied Sciences 3. Reha Rheinfelden, Rheinfelden, SWITZERLAND[4], 1. Bern University of Applied Sciences, Burgdorf, SWITZERLAND[5], 2. Bern University, Bern, SWITZERLAND[6], 1. Bern University of Applied Sciences 3. Reha Rheinfelden, Burgdorf, SWITZERLAND[7]

Background: Cardiopulmonary fitness is compromised in stroke patients. There are limited data on cardiopulmonary fitness in dependent-ambulatory stroke patients due to the inability to test them with standard devices. The present study evaluated the feasibility of a modified robotics-assisted tilt table (RATT, Erigo, Hocoma AG, Switzerland) with volitional feedback control of work rate for peak cardiopulmonary performance testing in dependent-ambulatory stroke patients. Methods: Patients (FAC ≤ 3) with no contraindications to exercise testing and adequate cognitive performance underwent 3 separate exercise tests: a familiarization, an incremental exercise test (IET) and a constant load test. We used a RATT equipped with force sensors in the thigh cuffs, a work rate estimation algorithm and a real-time visual feedback system to guide the patients’ exercise work rate. Only the IET results are reported here. Outcome measures for the IET were peak oxygen uptake (VO2peak), respiratory exchange ratio at VO2peak (RERpeak), peak work rate (WRpeak), peak heart rate (HRpeak), and the Borg CR10 scale for dyspnea and leg effort. Results: To date, six stroke patients (59.7± 8.2 years [mean ± sd], 3 females) were included. Average VO2peak, RERpeak and HRpeak were 10.8 ml/kg/min (range 5.6-16.8), 0.98 (0.78-1.20) and 105.3 beats/minute (range 66-126). Mean WRpeak was 18.8 W (5.5-37.5). These are considered to be substantial responses in these severely-compromised neurological patients: mean HRpeak was 65.2% of the age-predicted maximum and mean VO2peak was 42% of the predicted peak for normal subjects. Borg scale values were 5.2 (dyspnea) and 7 (leg effort). Conclusions: The RATT with volitional work rate control elicits substantial cardiopulmonary responses and is deemed feasible for peak cardiopulmonary performance testing in dependent-ambulatory stroke patients.