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Objective: Unilateral stroke can lead to a disorder of postural balance that manifests as a pushing away toward the parietic side. It is termed "pushing syndrome" (PS). Previously reports mentioned that PS typically involves the lesion site of posterior thalamus, posterior insula, and subcortical region of post-central gyrus. Some previously reports PS has good prognosis, and the patients with right hemisphere lesions exhibited a significantly slower recovery from PS than the patients with left hemisphere lesions. However, a relationship between lesion location and the time course of recovery of PS is still unclear. Thus, this study aimed to investigate the relationships between the time course of PS and right brain lesion sites.

Method: We investigated 9 patients with acute ischemic right hemispheric stroke. The time course of the severity of PS was assessed using the standardized Scale for Conspicuous Posture (MF).

Results: The data gathered evidence for an association between the delay of recovery of PS and frontal white matter lesions (superior occipitofrontal fascicle, superior longitudinal fascicle).

Implications: Previous studies revealed that patients with PS required longer rehabilitation to reach outcome goals than patients without PS. Our results indicate that when patients with PS have the right frontal white matter lesion, planning a long rehabilitation should be considered compared to patients with other lesions.

PO-4714
FACTORS AFFECTING THE FUNCTIONAL IMPROVEMENT OF PATIENTS WITH SPINAL CORD INJURY

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Objective: The purpose of this study was to predict the prognosis of patients with Spinal Cord Injury (SCI) by identifying some factors affecting functional improvements. We analyzed the data of 402 SCI patients hospitalized in the Korea national rehabilitation hospital from 2007 to 2009. We looked into such variables as sociodemographic characteristics, number of days after injury, neurological impairment, and comorbidity indexes, and degree of functional improvement. The degree of functional improvement was assessed by differences in the Spinal Cord Independence Measure (SCIM) between admission and discharge. Using a data mining technique, we examined the relationship between patients' characteristics and functional improvements.

Results: On average, the patients were 42.5 years old and had 2.45 comorbidities, and the number of days after injury was 71.7. The mean difference of SCIM scores was 12.5 (4.3 at admission, 55.3 at discharge). 402 patients were classified into 15 subgroups according to the degree of functional improvement through the CART. In the group of patients with the highest degree of functional improvement (28), the average days after injury was under 150 and their SCIM scores were over 65 at admission. In the group with the lowest degree of functional improvement (2), however, the period after injury was over 650 days, and their SCIM scores were over 59 at admission. At a result, the most effective predictors for functional improvement were days after injury and SCIM scores at admission.

Implications: Impact on Rehabilitation: It is necessary to identify the relationship between patients' characteristics and rehabilitation outcomes for appropriate rehabilitation treatment.

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PO-4715
THE STUDY ON CHARACTERISTICS OF BALANCE DISFUNCTION IN STROKE PATIENTS BY SMART EQUITEST BALANCE MASTER

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Objective: To study the characteristics of balance dysfunction of stroke patients by Smart EquiTest Balance Master. Method: Sixteen healthy peoples and thirty-two stroke patients was involved in this study. Balance function of all the three groups were evaluated by the Smart EquiTest Balance Master, including Sensory Organization Test (SOT), Limits of Stability (LOS) and Walk Across (WA). The index to be observed were the Weighting of damaged lower limbs, equilibrium score, sensory analysis score, max excursion, step length, step width, and walking speed. Results: The results of Smart EquiTest Balance Master of the control group were compared with the stroke group continued. 1. Healthy person show symmetric weight bearing and the center of gravity was in the middle line while stroke patients show obviously asymmetric weight bearing with more weight on the nonparalytic limb and low equilibrium score, smaller max excursion and slower walking speed. 2. The ability of using vision, somatosensory and vestibular information to maintain balance in stroke patients is impaired. 3. The gait disorder of stroke patients was represented as shorter step length and slower walking speed. Implications: Balance disorders in stroke patients were described in our study asymmetric weight bearing with more weight on the nonparalytic limb, impaired ability using sensory information to maintain balance.

PO-4716
ANALYSIS THE EFFECTIVE OF HYPERBARIC OXYGEN THERAPY IN STROKE PATIENTS WITH EARLY REHABILITATION AND NURSING

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Purpose: Discuss the effective of hyperbaric oxygen therapy on early stroke patients with cognitive, balance and ADL ability, and the importance of nursing intervention on the therapy. Method: 75 hospitalized stroke patients were divided into 2 groups, group A received conventional rehabilitation treatment and care at the same time using of hyperbaric oxygen therapy, Group B received conventional rehabilitation treatment and care. Both group A and B were assessed the MMSE, Fugl-Meyer, GDS before and after a month of treatment.

Results: The score of MMSE, Fugl-Meyer balance, GDS of group A and B had no significant difference (p>0.05), the t-test showed that after rehabilitation treatment, the scores of two groups were improved significantly (p<0.05), except to the MMSE score of group B (p=0.05), t-test between A and B groups showed that the scores of initial evaluation of MMSE, Fugl-Meyer balance, GDS of group A and B had no significant difference (p>0.05) but the score of end evaluation of that of group A and B was a significant difference (p<0.05).

Conclusion: After stroke, the ability of cognitive, balance and ADL of patients were decreased, early conventional rehabilitation can improve the patients' above ability, adding hyperbaric oxygen therapy and nursing intervention, the effect would be more pronounced.

PO-4717
FACTORS INFLUENCING DECISION MAKING REGARDING THE CHOICE OF NEUROGENIC BLADDER MANAGEMENT IN PEOPLE WITH SPINAL CORD INJURY: A QUALITATIVE STUDY

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**PO-0719**

**STROKE, PHYSIOTHERAPY AND PHYSICAL FUNCTION POST STROKE: WILL REGULAR EXERCISE EARLY IN STROKE REHABILITATION HAVE A POSITIVE EFFECT ON EXERCISE HABITS AND FUNCTION THREE YEARS AFTER?**

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**Background:** Exercise post-stroke is a limited resource. **Objective:** to observe physical function, personal instrumental activities of daily living and health related quality of life was maintained in three years post stroke. Methods: a longitudinal randomized controlled trial. Intervention: Patients allocated to the intensive exercise group were scheduled to have a minimal number of 30% physical therapy in the first year post stroke. The regular exercise group was in charge of their own progress. Results: Of 75 patients with stroke at baseline, 77 were eligible for follow up three years post stroke, 19 (24.3%) in the intensive exercise group and 18 (26% in the regular exercise group. All were active during exercise, either in a community setting with an individual coach, in an exercise group or by themselves doing home exercises. Motor function improved in all six months and stabilized and was maintained on the same level up to three years post stroke in both groups. The same tendency was present in scores Timed Up and Go, Berg Balance Scale, Barthel Index, grip strength bilaterally, walking distance, and health-related quality of life (EQ-5D). Both groups reported a higher extent of activity in all items of Instrumental Activities of Daily Living at 3, 6, 12 and 18 months post stroke. However, there were significant differences in several items at 12 and 18 months in favour of the regular training group. Approximately 40% in both groups were independent while 60% rated on help from relatives or community based services three months up till three years post stroke. Conclusion: Persons with stroke regain and maintain physical performance, balance, mobility, BDH, BBS, walking capacity and grip strength with regular physical training in three year post stroke perspective. No adverse effects or increased pain was reported. Maintenance training appears to be reinforced by individuals in charge of their own progress and enhanced through motivational test.

**PO-0718**

**CAREY-OVER EFFECT IN INTEGRATED VOLITIONAL CONTROL ELECTRICAL STIMULATION OF WRIST EXTENSO OR MUSCLES FOR STROKE PATIENTS**

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**Objective:** Electrical stimulation therapy is used for training of the upper limbs in hemiplegic patients. It has been reported that this therapy can improve the functions of the paralyzed upper limb while suppressing spasticity. In this study, we applied integrated volitional control electrical stimulation (IVES) therapy for rehabilitation of the paralyzed upper limbs of sub-acute hemiplegic patients. Subjects: Sixteen patients with hemiplegia after stroke were included (11 males and 5 females, average age 61.1 years, average days after onset 55.9 days). Methods: Our objective was to investigate the carry-over effect of this method during stroke rehabilitation post-IVES therapy was conducted for 20 min per day for one week. To investigate the carry-over effect, we measured the active wrist dorsiflexion angles at 30, 40, 50, and 70° after daily rehabilitation sessions. Results: Compared to the method obtained before the start of rehabilitation, the active wrist dorsiflexion angles had improved. The SIAS and MAC also showed improvement. However, the differences were not significant. While active wrist dorsiflexion angles at 30, 40, 50, and 120° after daily rehabilitation sessions. The difference between the two rehabilitation groups was not significant. The active wrist dorsiflexion angles were significantly different at 40, 70, and 120°. The dorsiflexion angle was about two times larger than the dorsiflexion angles of the healthy side. Conclusion: Our findings revealed the short-term therapeutic effects of IVES.