

00923 / #246

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS  
06-11-2020 8:00 AM – 8:30 AMEXAMINING FUNCTIONAL OUTCOMES IN PATIENTS WITH SPINAL CORD  
INFARCTION OF VARIOUS ETIOLOGIES: A RETROSPECTIVE CHART REVIEWJ. Valles<sup>1</sup> and H. Mohamed<sup>2</sup><sup>1</sup>Burke Rehabilitation Hospital, Physical Medicine & Rehabilitation, White Plains, United States of America; <sup>2</sup>Brooklyn Methodist Hospital – New York Presbyterian, Physical Medicine & Rehabilitation, Brooklyn, United States of America

## Group Name:

Background And Aims: Spinal cord infarction (SCI) is rare accounting for 0.3–1% of all strokes. Sequelae include variable degrees of tetraplegia/paraplegia and autonomic dysfunction. Etiologies include vascular procedures, systemic hypoperfusion, embolism, infections, and others. Treatment may include antiplatelet therapy but is mainly supportive consisting of aggressive physical and occupational therapy plus medical management for secondary complications. In this study, we reviewed the etiologies and outcomes of patients with SCI admitted to a single acute rehabilitation hospital.

Methods: A retrospective chart review was conducted on patients from January 2012 to December 2017. ICD codes were used to identify patients with an admitting diagnosis of SCI. Patient demographics, etiology, length of stay, and Functional Independence Measures (FIM) scores at admission and discharge were analyzed.

Results: Of 7213 patients admitted to the rehabilitation hospital, 15 (0.21%) had an admission diagnosis of SCI. Etiologies included post vascular procedures (10), systemic hypoperfusion (1), meningitis (1), anterior spinal artery infarct (1), and cryptogenic (2). Patients had similar lengths of stay. All patients had similar admission FIM scores and gains in FIM motor subscores. Those who had undergone vascular procedures had statistically significant greater gains in FIM cognitive subscores.

Conclusions: The study revealed a difference in cognitive gains in patients post vascular procedures relative to SCI of other causes. Further inquiry is needed to determine if differences in functional improvement exists in patients with SCI of various etiologies. This may change how therapy interventions are provided in rehabilitation by addressing not only the physical and occupational needs but also the cognitive needs of patients.

Trial Registration Number: Not applicable

00924 / #271

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS  
06-11-2020 8:00 AM – 8:30 AMEVALUATION OF NONINVASIVE BRAIN STIMULATION ON POST-STROKE  
CLINICAL RECOVERYS.Z. Emami Razavi, M. Azadvari and M. Hosseini

Tehran University of medical sciences, Physical Medicine &amp; Rehabilitation, Tehran, Iran

## Group Name:

Background And Aims: Stroke causes changes in neural system and related cortico-subcortical excitability, both in the affected area and in the spared contralateral hemisphere. These noninvasive brain stimulation such as repetitive transcranial magnetic stimulation (rTMS) & Transcranial direct-current stimulation (tDCS) are easy measures for rehabilitation after stroke.

Methods: This abstract reviews the current evidence from the literature on the efficacy of rTMS & tDCS on different clinical and rehabilitative aspects of stroke patients. These modalities may be useful in different aspects of stroke such as motor and fine motor function, walking, balance, spasticity, dysphagia, aphasia, neglect, depression, and cognitive function.

Results: The current literature converges on the positive effect of rTMS in the rehabilitation of all clinical manifestations of stroke, except for spasticity and cognitive impairment, due to diversity & heterogeneity of the literatures the exact protocol is not obvious in rTMS. (1)

Conclusions: Increasing research in using tDCS methods shows a lasting effect, contributing to brain plasticity and motor relearning. Stimulation of the affected or non-affected hemisphere can perform. The devices are portable, stimulation is easy to deliver, and no major side effects. Recent research is focused on maximizing the outcome of stroke rehabilitation by combining them with other modalities.

(2) References: 1. F.F. Repetitive transcranial magnetic stimulation in stroke rehabilitation: review of the current evidence and pitfalls. *Ther Adv Neurol Disord.* 2019;25. 2. Solomons CD SV. A review of transcranial electrical stimulation methods in stroke rehabilitation. *Neurol India.* 2019;67(2):417-23. Trial Registration Number:

00925 / #358

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS  
06-11-2020 8:00 AM – 8:30 AMCHARACTERISTICS OF THE INFLUENCE OF KINESITHERAPY ON MOTOR  
ACTIVITY IN ISCHEMIC STROKE IN CHRONIC PERIODD. Vasileva<sup>1</sup>, D. Lubenova<sup>2</sup>, K. Grigorova<sup>2</sup> and A. Dimitrova<sup>2</sup><sup>1</sup>University Goce Delchev, Faculty of Medical Sciences, Physical Medicine, Rehabilitation And Kinesitherapy, Shtip, North Macedonia; <sup>2</sup>National Sports Academy Vasil Levski, Department Physiotherapy And Rehabilitation, Bulgaria

## Group Name:

Background And Aims: Functional recovery mechanisms are thought to be related to biological recovery of the brain lesion, adaptive reorganization by engaging new neural networks, and the use of compensatory strategies to accomplish a specific task – replacement behavior or training the patient to compensate for his or her deficit. The aim of the study is to trace the effects of specialized kinesitherapeutic methodology (SKTM) on motor activity in patients with supratentorial unilateral stroke in the chronic period (SUSChP).

Methods: The study was conducted with 67 patients with SUSChP (56 patients included in the experimental group – 32 men and 24 women, with duration of disease 7.8T2.0 months, and 11 patients in the control group – 9 men and 2 women, with duration of disease 7.3T1.5 months). To assess the functionality of motor recovery using the modified scale Chedoke-McMaster and Ashworth scale. Stage of motor recovery is evaluated at baseline, 10-day and 1st month after the start of KT in both groups. Spearman correlation analysis was used to search a connection between changes in the different metrics.

Results: From the presented correlation dependencies in the course of the applied SCTM, a negative correlation dependence was found between functional recovery and muscle tone of the upper and lower extremity, with the highest significance on day 10.

Conclusions: This is due to the effect of targeted upper and lower extremity exercises with the ultimate goal of improving motor activity.

Trial Registration Number: 358

00926 / #359

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS  
06-11-2020 8:00 AM – 8:30 AMIMPACT OF DAILY ACTIVITIES IN PATIENTS WITH SUPRATENTORIAL  
UNILATERAL STROKE IN THE CHRONIC PERIODD. Vasileva<sup>1</sup>, D. Lubenova<sup>2</sup>, K. Grigorova<sup>2</sup> and A. Dimitrova<sup>2</sup><sup>1</sup>University Goce Delchev, Faculty of Medical Sciences, Physical Medicine, Rehabilitation And Kinesitherapy, Shtip, North Macedonia; <sup>2</sup>National Sports Academy Vasil Levski, Department Physiotherapy And Rehabilitation, Bulgaria

## Group Name:

Background And Aims: Kinesitherapy is one of the main therapeutic approaches in the treatment of stroke. There is evidence of its positive effect on the motor capabilities of patients, which is important evidence of the effect of kinesitherapy on their independence and self-care. The aim of the study is to trace the effects of specialized kinesitherapeutic methodology (SKTM) on activities of daily living in patients with supratentorial unilateral stroke in the chronic period (SUSChP).

Methods: The study was conducted with 67 patients with SUSChP with duration of the disease 7.3 T1.5 months). To evaluate the changes is used Functional Independence Measure test – FIM and balance test – Berg Balance Scale. In the patients from the experimental group is applied treatment with a specialized 10-day KT, continued later as an adapted exercise program at home for a period of 1 month. Control patients are following a conventional 10-day KT. Spearman correlation analysis was used to search a connection between changes in the different metrics.

Results: The results obtained from the total FIM score correlated positively with the observed changes in the total score of functional indicators for balance reaction ( $r = 0.85$  and  $p < 0.01$ ), with a significant correlation between the change in indicators throughout the follow-up period.

Conclusions: There is a significant correlation between the total amount of Berg and FIM, which is related to the pronounced immediate and long-lasting effect of the approved methodology.

Trial Registration Number: 359

00927 / #360

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS  
06-11-2020 8:00 AM – 8:30 AM

## GAIT ANALYSIS IN PATIENTS WITH ISCHEMIC STROKE IN THE CHRONIC PERIOD

D. Vasileva<sup>1</sup>, D. Lubenova<sup>2</sup>, K. Grigorova<sup>2</sup> and A. Dimitrova<sup>2</sup><sup>1</sup>University Goce Delchev, Faculty of Medical Sciences, Physical Medicine, Rehabilitation And Kinesitherapy, Shtip, North Macedonia; <sup>2</sup>National Sports Academy Vasil Levski, Department Physiotherapy And Rehabilitation, Bulgaria

**Group Name:**

**Background And Aims:** The gait of patients with chronic post-stroke hemiparesis is realized through the use of compensatory strategies that are a replacement for alternative motor deficits. They are adaptive and optimal for the ultimate motor response and can be evaluated and documented by human step analysis. The aim of the study is to trace the effects of specialized kinesiotherapeutic methodology (SKTM) on the kinetic parameters of gait in patients with supratentorial unilateral stroke in the chronic period (SUSChP).

**Methods:** The study was conducted with 67 patients with SUSChP. To evaluate the changes in the gait were followed cadence of 6m and 10m and the speed of movement which are the most informative kinetic parameters. Patients in the experimental group were treated with a specialized 10-day KT, which later continued to perform as an adapted exercise program at home for a period of one month. Spearman's correlation analysis was used to search a connection between changes in the different metrics.

**Results:** The correlation between the number of steps at 6 and 10 meters and the speed of gait is negative, with the highest significance at day 10 of the study. Increase in gait speed in patients decreases the number of steps at 6 and 10 meters.

**Conclusions:** This study shows that functional limitations of gait in all patients with ISChP improved after applied 10-day SKTM that is continued as a program of exercises at home for 3 months. In absolute terms, the improvement was most pronounced on the 1st month of treatment.

Trial Registration Number: 360

00928 / #430

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

**THE EFFECT OF THE DRUG LEVODOPA ON THE RESTORATION OF MOTOR FUNCTION IN THE EARLY REHABILITATION PERIOD OF ISCHEMIC STROKE**

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*Tashkent Medical Academy, Neurology, Tashkent, Uzbekistan*

**Group Name:**

**Background And Aims:** Rehabilitation of patients after ischemic stroke is one of the most relevant problems of modern neurology. Such patients, as a rule, have severe organic defects – paralysis, speech and coordination disorders and sensitive disorders leading to disability. The aim of the study was to evaluate the effectiveness of the drug levodopa for patients in the early recovery period of ischemic stroke

**Methods:** A total of 123 people (57 female and 66 male) aged 40 to 79 years were examined. All patients were in the recovery period after an ischemic stroke. All patients were divided into two groups. Group-1 consisted of 64 people who received levodopa (a harbinger of dopamine) in a daily dose of 250 to 1000 mg. In the second control group, there were 59 people; they received nootropil in a daily dose of 1200–2400 mg as placebo. The effectiveness of the drugs was evaluated by hand dynamometry on days 1 and 14 of the treatment.

**Results:** In the clinical group No. 1, according to wrist dynamometry, the indicators increased from 14.84 T 2.51 kg/cm to 21.62 T 2.14 kg/cm on the 14th day of treatment. In the control group, on the first day, 13.01 T 2.61 kg/cm and 13.71 T 2.21 kg/cm on day 14. The probability of random differences in the results obtained by student's criterion:  $p < 0.05$ .

**Conclusions:** The study shows an increase in muscle strength in levodopa receiving group, compared with the control group.

Trial Registration Number: Not applicable

00929 / #610

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

**BASED ON SURVEY MONITORING FOR ACUPUNCTURE MANAGEMENT OPTION IN STROKE REHABILITATION**

Y.J. Kim

*Xiamen University Malaysia, School Of Traditional Chinese Medicine, Sepang, Selangor, Malaysia*

**Group Name:**

**Background And Aims:** Stroke is a significant global health problem contributing to major morbidity and mortality for both developed and developing countries. These patients also have one of the long terms of stay in rehabilitation. In this study based on survey monitoring how stroke patients value acupuncture and their perceptions of acupuncture as a stroke rehabilitations option.

**Methods:** A digital questionnaire form was distributed to individuals undergoing post stroke rehabilitation at Ren TCM, Regency Specialist Hospital, Johor, Malaysia. A 3-page questionnaire was constructed which consisted of 18 questions addressing respondents experience of, and attitudes towards, acupuncture and questions gathering demographic data.

**Results:** One hundred participants completed the questionnaire with the respondent group comprising mainly males (62%) over 65 years of age (68%). Overall 95% had used acupuncture with 85% receiving acupuncture treatment for stroke related conditions. Almost all respondents (95%) wanted to know more about acupuncture in stroke rehabilitation and 87% would consider acupuncture as a treatment option. Few (8%) reported that they had advanced level knowledge about acupuncture, with most reporting a basic (52%) or intermediate (33%) level which recognized that acupuncture used fine needles to produce a therapeutic response. Those with prior acupuncture experience expected to pay

more for treatment. The main factors influencing decisions to use acupuncture were practitioner competency (87%), cost (52%) and sterilization concerns (20%).

**Conclusions:** This based on survey monitoring study demonstrates that there is health willingness by participants attending conventional specialist hospital-based rehabilitation centres to consider acupuncture management in stroke rehabilitation and that lack of knowledge about this treatment is not a barrier to use.

Trial Registration Number: Not applicable.

00930 / #613

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

**ADAPTATION AND FEASIBILITY OF THE BOTULINUM TOXIN THERAPY WITH TRANSCRANIAL DIRECT CURRENT STIMULATION FOR UPPER LIMB SPASTICITY ASSOCIATED WITH STROKE**

S. Saeki, M. Ninomiya, A. Hachisuka, H. Itoh, M. Ochi and Y. Matsushima

*University of Occupational and Environmental Health, Department Of Rehabilitation Medicine, Kitakyushu-city, Japan*

**Group Name:**

**Background And Aims:** Injected Botulinum neurotoxin (BoNT) can reduce spasticity, but because the effects last for only 3 months, several injections are needed over the long term. Transcranial direct current stimulation (tDCS) is a novel strategy for potentially reducing post-stroke spasticity, and it might prolong the duration of reduced spasticity elicited by BoNT. This preliminary study aimed to identify problems with adaptation and the feasibility of BoNT therapy with anodal tDCS to treat upper limb spasticity in patients with stroke.

**Methods:** This single-blind, randomized sham (placebo)-controlled pre-/post-test study recruited patients who had stroke onset over six months previously. After BoNT therapy, the patients were randomly assigned to receive either active (2 mA anodal x 20 min) or a sham (placebo) tDCS over the primary motor cortex (MI) on the damaged hemisphere daily with routine occupational therapy, five days each week for three weeks (total, 15 sessions). Outcome measures were adverse events/safety assessment and changes in modified Ashworth scale (MAS) scores.

**Results:** This study was completed without the need to stop medical monitoring. No adverse effects developed during the intervention.

**Conclusions:** The findings showed that BoNT and tDCS are apparently safe, feasible, and tolerated well by patients with spasticity due to stroke. Future large-scale clinical trials are indicated to explore the long-term benefits of BoNT and tDCS for such patients.

Trial Registration Number: Not applicable

00931 / #713

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

**PREDICTION OF INDEPENDENCE IN ACTIVITIES OF DAILY LIVING THREE MONTHS AFTER STROKE: A PROSPECTIVE OBSERVATIONAL STUDY**

O.P. Norvang<sup>1,2</sup>, A. Dahl<sup>1</sup>, P. Thingstad<sup>2</sup> and T. Askim<sup>2</sup>

*<sup>1</sup>St Olav University Hospital, Clinical Services, Norway; <sup>2</sup>Norwegian University of Science and Technology, Department Of Neuromedicine And Human Movement Science, Norway*

**Group Name:**

**Background And Aims:**

**Background and aim:** Independence in activities of daily living (ADL) is an important goal after a stroke, and it is therefore crucial to be able to predict this as early as possible. The primary aim of this study was to assess whether gait speed, resilience and fatigue in the acute phase can predict independence in ADL three months after a stroke.

**Methods:** Participants with stroke, a modified Rankin Scale score  $\leq 4$ , capable of walking 10 meters without person support, and 4–6 points on the item "orientation" on the Scandinavian Stroke Scale, were included during the initial hospital stay. Gait speed, Brief Resilience Scale and Fatigue Severity Scale were measured at baseline, and independence in ADL (Barthel Index) three months later. Age, gender and modified Rankin Scale prior to the stroke were added as covariates.

**Results:** Sixty-five participants (36 male) with a mean (SD) age of 75.9 (8.6) years were included 4.3 (2.8) days after a stroke. Gait speed in the acute phase was associated with Barthel Index three months later (regression coefficient of 15.8 (95% CI 9.7 to 21.8,  $p < 0.001$ )), explaining 28.9% of the variance, and with a standard error estimation of 8%. Neither resilience nor fatigue predicted independence in ADL. By adding all variables into the model, 51% of Barthel Index variance was explained.

**Conclusions:**

**Conclusion:** Gait speed might be a simple tool that can help predict independence in ADL after stroke. This study highlights the importance of early measurements of gait speed in stroke rehabilitation.

Trial Registration Number: Not applicable

Conclusions: The knowledge about the personal, clinical and social factors of the adherence in the post stroke patients helps to understand the barriers to exercise treatment.  
Trial Registration Number: Not applicable

00970 / #2611

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

SUPPORTING AND MOTIVATING INDEPENDENT MOBILITY OF STROKE PATIENTS VIA REHABILITATION CLINIC DESIGN

M. Kevdzija and G. Marquardt

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Group Name:

Background And Aims: Research studies on the time use of patients during rehabilitation show that they are inactive in their rooms for more than 50% of the day. Besides the post-stroke impairments, the unsupportive built environment is likely to be another contributor to the low activity levels. The aim of the study was to identify and examine the architectural features of rehabilitation clinics that promote and motivate patients' independent mobility.

Methods: Patient shadowing (n = 70) and patient questionnaire (n = 60) were used in seven German neurological rehabilitation clinics. Ten patients using wheelchair, walker or independently walking were shadowed in each clinic, each patient for 12 consecutive hours (840 observation hours); with their paths, time logs and interactions with the built environment recorded on the floor plans.

Results: On average, patients spent around 50% of time alone in their rooms between 07:00h and 19:00h. Patients chose to voluntarily visit places in the radius of around 47m, which is a significantly shorter distance compared to their average paths to therapy. The most commonly used spaces were the corridor and corridor extensions, followed by the living/dining room on the ward. The most dominant activities were related to sitting (alone or in company) and consuming food/beverages or taking them to their rooms. Patients reported that they would like a greater number and larger variety of common spaces in their rehabilitation clinics.

Conclusions: The role of the built environment in rehabilitation clinics should not only be to support the healthcare processes, but also to support and enhance the daily life of stroke patients.

Trial Registration Number: Not applicable

00971 / #2618

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

THE EFFECT OF PHYSIOTHERAPY ON THE FUNCTIONAL RECOVERY IN PATIENTS AFTER STROKE IN A SUBACUTE STAGE

A. Dimitrova<sup>1</sup>, K. Grigorova<sup>1</sup>, D. Lubenova<sup>1</sup> and D. Vasileva<sup>2</sup>

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<sup>2</sup>University Goce Delchev, Faculty of Medical Sciences, Physical Medicine, Rehabilitation And Kinesitherapy, Shtip, North Macedonia

Group Name:

Background And Aims: Neurorehabilitation is a well-established strategy for patients' recovery after stroke. The aim of the study is to investigate the effect of applied physiotherapy (PT) on the postural control and the gait in patients three months after ischemic stroke.

Methods: 24 patients (16 men, 8 women, mean age 69.3 T2.1) with stroke were studied. The PT sessions were conducted individually, two times daily for 2 weeks in clinical settings. The protocol included techniques for improvement of the elasticity of the soft tissues and maintaining the range of movements; exercises for improving the postural control in various anti-gravity positions and the transfers from different starting positions (sitting, standing, walking) in various environmental conditions. The assisted movements, tactile and verbal feedback are used to correct and to achieve better segment alignments for more independent motor control. Patients were assessed before and after the PT using the Trunk Impairment Scale, Five Times Sit-To-Stand Test, the test "Timed Up and Go" and 10 meters walking test.

Results: All the patients achieved better postural stability ( $p < 0.05$ ), increased their functional strength of the lower limbs and improved their ability for transfers ( $p < 0.05$ ) and their overall mobility ( $p < 0.05$ ). Their increase in walking speed was not significant but the overall improvement trend shows that it is possible for the studied patients to achieve greater independence in their everyday life activities.

Conclusions: The PT program improves the static and dynamic control, coordination of the trunk movements and functional abilities in patients 3 months post ischemic stroke.

Trial Registration Number: 2618

00972 / #2641

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

CORRELATION BETWEEN DIAPHRAGMATIC MOVEMENT AND PULMONARY FUNCTION IN ACUTE STROKE PATIENTS

K. Grigorova<sup>1</sup>, A. Dimitrova<sup>1</sup>, D. Lubenova<sup>1</sup> and D. Vasileva<sup>2</sup>

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Group Name:

Background And Aims: The diaphragm muscle is considered as a major determinant of ventilatory function and any reduction in its movement in stroke patients may contribute to respiratory dysfunction. The aim of this study was to evaluate the correlation between pulmonary function and diaphragmatic movement after inspiratory training in acute ischemic stroke patients.

Methods: Twenty-two ischemic stroke patients in the acute period were included after the mobilization was indicated (no later than 48 hours), (71.14 T 5.54 years old, 12 men, 13 right hemiparesis, with light to moderate stroke severity NIHSS scale 9 T2.6). The monitored outcome measures were: respiratory function through spirometry – forced vital capacity (FVC), forced expiratory volume at one second (FEV<sub>1</sub>), peak expiratory flow (PEF), inspiratory capacity (IC) and ultrasonographic detected hemidiaphragmatic movement in relaxed (HMR) and in deep (HMD) breathing. All participants received functional-oriented physical therapy based on their motor activity during hospitalization and after discharge as a home-based program for 4 weeks

Results: A consistent and statistically significant correlation was found between FVC and amplitude of HMD in affected side ( $r = 0.601$ ,  $p = 0.003$ ), IC and less affected HMR ( $r = 0.527$ ,  $p = 0.012$ ) and IC with less affected HMD ( $r = 0.700$ ,  $p = 0.000$ ). No relation was found between the other variables.

Conclusions: In the studied group of individuals, the tendency for compensatory reaction of the unaffected hemidiaphragm during automatic and volitional breathing after inspiratory training was observed. The incentive visual-feedback inspiratory training positively influenced expiratory function.

Trial Registration Number: 2641

00973 / #2648

E-Poster Viewing

AS08. REHABILITATION – EXCLUDING CLINICAL TRIAL RESULTS

06-11-2020 8:00 AM – 8:30 AM

"PUSHING DURING WALKING" IN ADULT PATIENTS AFTER HEMISPHERIC STROKE

H. Hefter<sup>1</sup>, D. Rosenthal<sup>1</sup>, S. Samadzadeh<sup>1</sup>, G.F. Francisco<sup>2</sup>, D. Raab<sup>2</sup>, A. Kecskemethy<sup>2</sup> and M. Siebler<sup>3</sup>

<sup>1</sup>University Hospital of Düsseldorf, Department Of Neurology, Düsseldorf, Germany;

<sup>2</sup>University of Duisburg-Essen, Department Of Mechanics And Robotics, Duisburg, Germany;

<sup>3</sup>MediClin Fachklinik Rhein/Ruhr, Department Of Neurology And Neurological Rehabilitation, Essen-Kettwig, Germany

Group Name:

Background And Aims: During the action of sitting, up to 35% of the patients push to the affected side after an acute hemispheric stroke. We analyze the deviation of the upper trunk to the affected side (DUTAS) during walking in patients having recovered from a hemispheric stroke and demonstrate the negative impact of DUTAS on gait performance.

Methods: In 99 patients having recovered after a hemispheric stroke (mean age: 58yrs) with more than 10-meter walking ability, kinematics (during walking at the preferred gait speed) were recorded using an array of 8 VICON cameras. Reflective markers were attached to the body, especially at the sacrum and C7 cervical vertebra. The deviation angle of the vertical from the line through the sacrum and C7-marker was measured. Walking abnormalities, including the abnormal posture of the upper trunk, were rated by five rehabilitation experts.

Results: Relevant DUTAS was observed in 35.6% of the right-side, and 37% of the left-side affected patients. There was a highly significant ( $p < .0001$ ) positive correlation between rating of gait abnormalities and DUTAS and a significant ( $p < .01$ ) negative correlation between DUTAS to the right or left side and gait speed. Additionally, the post-stroke period (shorter than four months or longer than 4 up to 120 months) had no influence on DUTAS.

Conclusions: The lateral deviation of the upper trunk to the affected side during walking is frequently observed in post-stroke patients. Because of the associated negative impact on gait performance, correction of trunk lateral bending is essential in post-stroke gait rehabilitation.

Trial Registration Number: