Objective(s): To investigate the impact of post-injury coping strategies on acceptance of traumatic brain injury among an ethnically diverse sample of men and women with traumatic brain injury (TBI).

Design: Mixed-methods cross-sectional survey.

Setting: General community.

Participants: Purposive quota sampling based on race, gender, and time-post injury of 60 adults with TBI (male = 33, women = 27) living in the community at least 3 months post-discharge from a Level 1 trauma hospital or an inpatient rehabilitation hospital (Mean = 48.6 months post-injury).

Interventions: N/A.

Main Outcome Measure(s): Structured qualitative interview on coping and adjustment to TBI; 24-item Brief COPE: Acceptance of TBI Scale.

Results: Qualitative analysis of the narratives revealed that family and religion/faith were the most frequently reported sources of help in adjusting to TBI for both men and women with TBI. About 20% of the women shared that exercising, using compensatory strategies, and using positive self-talk helped them cope with consequences of injury. Only men reported getting help from a psychologist, obtaining cognitive rehabilitation, or had to learn to deal with the injury. Based on the Brief COPE, there were no significant differences in use of coping strategies after injury. Majority of the sample endorsed emotion-focused coping strategies, such as religious coping, acceptance, getting emotional support from others, and positive reframing. Greater use of acceptance and emotional support and less use of denial post injury were significantly associated with greater acceptance of the injury.

Conclusions: Receiving support from others and religion/faith may facilitate the ability to cope or adjust to post injury changes in both men and women with TBI. The assessment of post injury coping styles may assist with the identification of facilitators and barriers that may influence the outcomes of persons with TBI.

Key Words: Coping skills, Traumatic brain injury, Gender, Psychological adaptation.

Disclosure(s): None Disclosed.

Research Poster 3885

Empowering Patients: The Use of Eye Gaze Technology with Medically Complex Patients in the ICU

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Objective(s): To explore interventions for patients with loss of limb function admitted to an intensive care unit (ICU) to enable communication.

Design: Pilot prospective cohort study.

Setting: Three Tertiary Intensive Care Units.

Participants: Convenience sample of 20 recruited patients, 12 included in data analysis.

Interventions: Participants received 5 therapy sessions with eye gaze device (on consecutive business days) with either OT or SLP. Each session was 30-45 minutes.

Main Outcome Measure(s): Psychosocial Impact of Assistive Devices Scale (PIADS), measures the effect of technology on quality of life.

Results: The OT or SLP working with the patient noted qualitative information regarding the patient’s ability to use the device. Results show that every patient in the study was able to communicate basic needs to nursing staff and family. The most advanced patients were able to engage in conversations regarding their care and communicate with friends and family over social media. The mean overall impact of the eye-tracking computers (1.30) had a statistically significant positive effect on patients (p = .0044) as well as the scores for each of the PIADS subsections: the mean competence score was 1.26, adaptability score 1.60, and self-esteem score 1.02.

Conclusions: There is a significant population of patients in the ICU’s whose psychosocial status and communication ability are greatly enhanced by eye-tracking devices. Moreover, the ability to communicate and the patient’s psychosocial status are highly intertwined with intensive care patient outcomes; eye-tracking devices may provide an important intervention for this population of high-risk ICU patients. Of note, patients indicated that the device positively affected their happiness and ability to participate but did not greatly decrease their confusion level or frustration. A more in depth exploration of the limitations and benefits of eye-tracking devices in the ICU is warranted.

Key Words: Assistive technology, Intensive care unit, Eye gaze, Occupational therapy, Speech-language pathology.

Disclosure(s): None Disclosed.

Research Poster 3892

Constraint Induced Movement Therapy in Patients with Incomplete Tetraplegia After Spinal Cord Injury

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Objective(s): Demonstrate the effects of a pilot project on the implementation of Constraint Induced Movement Therapy in two incomplete tetraplegic patients after a spinal cord injury.

Design: Case series.

Setting: Ambulatory Study.

Participants: Patients were referred by physiotherapists of the Adult Physical Therapy Sector of the Assistance Association Disabled Children (AACK – Brazil), because they have a difficulty in using the upper limb due to the SCI in their daily activities. Inclusion criteria were: (1) medical diagnosis of incomplete quadriplegia, (2) clinically stable (released for motor therapies in the institution); (3) Symmetry in the functional use of the upper limbs (determined by the Motor Activity Log Scale); (4) active movement to present at least 45 degrees or more shoulder abduction and flexion, extension 20 or more elbow (on the 90 degrees flexion), 20 degrees of wrist extension (assuming the total flexion), 10 extension of the metacarpophalangeal and interphalangeal joints (test: take a tennis ball at least three times in a minute) and are classified as Grade 2 according to the TCI Management Levels Scale (Light); (5) adequate cognition (understanding numerical score and simple orders); (6) have agreed and signed the technical commitment contract. Exclusion criteria were: pain that interferes in the activities in therapy and at home, more than two consecutive faults (not case would be restored and extended protocol for 12 days), patients who did not comply with the proposed protocol of each group; clinical alterations as well as syringomyelia, postural hypotension, pressure ulcers and infections, such as tone and compromise the performance of the patient in therapy. Were included 2 participants.

Interventions: Constraint Induced Movement Therapy (CIMT) protocol - 3 hours / for 10 days / 30 hours: The exercises will be conducted focusing on the weaker upper limb training through selected exercises according to the needs of each patient. Each exercise should be performed 10 times with 30 seconds on each repetition (repetitive). During each repetition the therapist monitors the patient’s performance and the end always provides positive feedback and guidance regarding the changes to be made to the next. The degree of difficulty of the task is increased according to the improvement of the same performance during the repetitions. If the patient evolve and the next time the same activity already starts with good performance the level of difficulty can be increased and monitored during the task. The participants take place on average 8 to 10 different tasks during the entire protocol. All patients received the application of the behavioral package in the first 30 minutes, comprising the Behavioral Contract (completed and signed in the first treatment day) that the undertakes patient use the weaker upper limb outside of therapy; daily administration of MAL (15 questions per day); home diary and list of daily tasks.

Main Outcome Measure(s): In the study were used two scales the Motor Activity Log (MAL) and the Wolf Motor Function Test (WMFT), both validated for application in Brazil. The MAL is a structured interview applied to the patient daily. The scale is proposed to assess the patient’s perception about the actual use of the upper limb, outside the therapeutic environment, through thirty common functional tasks to the patient’s daily life and, therefore, is divided into two subscales: How Often (HO) and How Well (HW). The score in each item of the scale goes from zero to five points, and in the HO scale zero indicates the affected upper limb.
was not used and five, the use of the affected upper limb as often as before the injury. In HW scale, the zero indicates that the affected upper limb was not used in any way during the activity and the five, such good use of the affected upper limb as before the injury (normal). In both subscales, the score is defined by the patient. The WMFT is a scale that measures the ability to execute fifteen functional tasks through the time required to perform them. The final score is obtained by the arithmetic mean.

**Results:** Both patients had performance improvements, demonstrated by improvement in WMFT. Patients also showed an improvement in the frequency and quality of the use of the upper limb in theirs Activities of Daily Living, outside the therapeutic environment and they kept these results for up to 1 year.

**Conclusions:** Constraint Induced Movement Therapy demonstrated in both cases studied, be able to optimize the performance of the affected upper limb after Spinal Cord Injury and promote the transfer of these gains out of the therapeutic environment, which are kept for at least 12 months after the intervention.

**Key Words:** Spinal cord injury, Upper limb, Constraint induced movement therapy

**Disclosure(s):** None Disclosed.

**Research Poster 3893**

**The Effects of the Constraint Induced Movement Therapy in Adults with Cerebral Palsy**

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**Objective(s):** To investigate if the original protocol Constraint Induced Movement Therapy (CIMT) is adequate to reverse the non-use of upper limb in adult patients with Cerebral Palsy (CP).

**Design:** Retrospective Study.

**Setting:** Ambulatory Study.

**Participants:** In the initial stage of data collection were included the patients diagnosed with hemiparesis CP that had attended the adult CIMT protocol for the first time from January of 2009 to August of 2014, according to internal records of Physiotherapy and Care sectors occupational Adult. The total study sample was of 10 patients. The participants who received the treatment of CIMT during the study period were selected through the criteria of specifics inclusion of the technique: diagnosis of CP spastic hemiparesis, aged from 16 years; presence of active Affected Upper Limb (AUL) motor function: active movement to present at least 45 degrees or more shoulder abduction and flexion, extension 20 or more elbow (on the 90 degrees flexion), 20 degrees of wrist extension (assuming the total flexion), 10 extension of the metacarpophalangeal and interphalan- geal joints (test: take a tennis ball at least three times in a minute); be able to respond to simple commands; be available to attend all days consecutively (12 days for the adult protocol); be able to remain in therapy for 3 hours / day; asymmetrical use of the UL's (score lower than 2.5 on the scale Motor Activity Log-MAL); adequate vision / hearing and proper balance (the participants should be able to remain standing for two minutes and may use the UL support if necessary).

**Interventions:** The motor intervention was performed with focus on the training of AUL using the technique of shaping, characterized by the repetition of parts of functional task with parameters of progression defined and task practice, which refers to the practice of complete functional tasks carried out to simulate everyday activities. The patients also received daily application of behavioral package within 30 minutes of therapy, compounded by Behavioral Contract (filled and signed on the first day of treatment), in which the patient has committed to use the weaker or affected UL outside of therapy, and as the apparatus for restricting the unaffected UL (glove); daily administration of MAL (15 questions per day); Home Diary and List of Daily Tasks.

**Main Outcome Measure(s):** To evaluate the effects of the technique, was used data of the scales MAL and Wolf Motor Function Test (WMFT). The MAL is a scale in the form of a structured interview that assesses the quantity (QT) and the patient’s perception regarding quality (QL) of use of the UL affected outside therapeutic environment. Presents scores in relation to the amount of 0-5 points, being 0 not using arm and 5 use with the same frequency in relation to the other arm (normal). The quality subscale also has score of 0-5, being 0 not using arm and 5 normal quality of movement. The WMFT measures the speed of task execution through time. The total score of the performance is calculated by the average time for completion of all tasks. When the individual is unable to perform any of them is assigned a score of 121 seconds, since 120 seconds is the maximum time allowed for the individual to perform the task.

**Results:** One post hoc analysis was performed considering the means and standard deviations of the scales used in adult patients, considering the main objective of the study. Paired t-test considering z = 0.05, bi-caused analysis and sample of 10 patients were used. Both scales MAL QT and QL showed β = 1.0, and effect size of 4.61, and 4.63 respectively. Only the WMFT scale showed β = 0.07 and effect size of 0.14. The study variables were tested for distribution using the Kolmogorov-Smirnov test. Being parametric, was used the paired Student T test to analyze the effects of CIMT, considering p <0.05, and the outcome variables the quantity and quality of use outside the therapeutic environment and the speed of the AUL.

All patients in the study showed significant improvement when comparing pre and post-treatment of MAL scale (p <0.05), in quantity and quality of use of the AUL. There was also a decrease in the duration performance of movements assessed by the WMFT, but this difference was not significant (p = 0.350).

**Conclusions:** The Constraint Induced Movement Therapy is effective to reverse the non-use of the affected upper limb in adult patients with cerebral palsy.

**Key Words:** Cerebral palsy, Adults, Constraint induced movement therapy, Upper limb

**Disclosure(s):** None Disclosed.

**Research Poster 3908**

**Visuo-Spatial and Auditory Working Memory in Children with Cerebral Palsy**

Jacqueline Kaufman (University of Michigan), Seth Warschausky

**Objective(s):** To investigate patterns of visuo-spatial and auditory working memory (WM) in children with cerebral palsy (CP) using accessible testing strategies.

**Design:** Cross-Sectional Study. Included parametric manipulation of WM load and delay to examine accuracy outcomes relative to typically developing (TD) peers. Tasks were an Auditory and a Visuospatial WM task, each with 6 load conditions (range 1-7) and two delay conditions (1000ms and 3000ms). We presented serial streams of stimuli of varying lengths (target trial) followed by delay periods, then a 2nd string of stimuli (query trial) where participants decided whether the streams were the same/different. Responses were by button press rather than significant motor or speech response.

**Setting:** University-based health system.

**Participants:** A total of 108 children were either TD or diagnosed with CP (CP N=41, mean age=12.6, TD N=67, mean age=12.3) ranging from ages 6-16 were recruited from the community, large university health system or CP research registry. Participants with CP had GMFCS I-IV and MACS I-III.

**Interventions:** N/A.

**Main Outcome Measure(s):** Performance accuracy on query trials.

**Results:** General linear model examined load, delay, condition (visual/auditory) and group (CP/TD) predicting number correct found main effects for condition (p =.008) and load (p <.001) but not delay (p =.372). Participants performed better on the auditory task and performance accuracy dropped significantly with increasing memory load. An interaction effect was noted with participants in the CP group having more difficulty on the visual task (p =.006). Digit span was a significant predictor of WM task accuracy (p =.005).

**Conclusions:** This task represents a potential proxy for WM tasks that require motor/speech demands. Individuals with CP have risks for WM