

Health, Patient Health Questionnaire-9) of health status. At each timepoint after stroke, exploratory and confirmatory factor analysis were performed to identify and confirm the underlying factorial structure of the entire battery of outcome measures. Multivariate linear regression analysis was used to determine the amount of variance explained by clinical and demographic characteristics on extracted factors. Voxel-Based Lesion Symptom Mapping was used to examine the relationship between factors and patterns of neuroanatomical injury.

Results: In the battery of stroke outcome measures, two factors were identified and retained, accounting for $\geq 78\%$ of the overall variance across outcomes at every timepoint. Function-based measures loaded onto Factor 1 separately from patient-reported measures which loaded onto Factor 2. Results were consistent at each serial timepoint after stroke. Pre-stroke disability ($p=0.03$) and amount of damage to the corticospinal tract ($p=0.001$), explained significant variance in performance on Factor 1 (function-based outcomes), whereas education ($p=0.01$) and socioeconomic status ($p=0.04$) explained significant variance in performance on Factor 2 (PROMs). While function-based measures were related to injury to subcortical brain regions known to be important for motor function, patient-reported measures were related to injury to cortical brain regions including the insula and inferior parietal lobe, known to be important for affective processing and social cognition.

Conclusions: Two distinct factors representing function-based and patient-reported measures of health status were extracted from the study battery of stroke outcome measures scored across the first year post-stroke. Each factor was associated with injury to brain regions concordant with the content of the represented assessments. These findings emphasize the distinct behavioral elements and neuroanatomical underpinnings of function-based and patient-reported outcome measures after stroke and have potential implications for precision rehabilitation.

Categories: Stroke/Cerebrovascular Injury & Disease (Adult)

Keyword 1: stroke

Keyword 2: affective processing (normal)

Keyword 3: motor function

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98 Cognitive Outcomes Following Bilateral Focused Ultrasound Thalamotomy for Tremor

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Objective: Essential tremor (ET) is the most common movement disorder, characterized by bilateral action tremors of the upper extremities. Surgical interventions can be considered for severe cases that are refractory to medication. Magnetic resonance-guided focused ultrasound (MRgFUS) of the ventral intermediate nucleus of the thalamus (Vim) is a recently approved, minimally invasive treatment for unilateral tremor. While patients are generally pleased with unilateral treatment, many patients are bothered by tremor on the untreated side. Historically, bilateral thalamotomy has been associated with a higher rate of adverse events, including cognitive impairment. MRgFUS Vim thalamotomy for bilateral tremor is currently being investigated. The goal of the present study was to evaluate the effect of bilateral MRgFUS Vim thalamotomy on cognition.

Participants and Methods: Twelve patients with medication-refractory essential tremor (mean age = 68.77 +/- 11.78 years, mean education = 14.34 +/- 2.71 years, 8 male) were included in the present study. Three of the 12 patients met criteria for mild cognitive impairment (MCI). All patients successfully underwent unilateral MRgFUS thalamotomy at least 48 weeks before the second thalamotomy. A battery of neuropsychological tests was administered to patients before (considered baseline in the present study) and three months following the second thalamotomy. Baseline

evaluations occurred on average 144.64 +/- 91.53 weeks (range: 55.00 – 346.58) after the first thalamotomy. The neuropsychological battery assessed domains of processing speed (Oral Symbol Digit Modalities Test, D-KEFS Color-Word Naming and Reading), attention (WAIS-IV Digit Span Forward), executive function (D-KEFS Color-Word Inhibition and Inhibition/Switching), working memory (WAIS-IV Digit Span Backward and Sequencing), verbal fluency (D-KEFS Letter Fluency and Animal Fluency), confrontation naming (Boston Naming Test), verbal memory (Hopkins Verbal Learning Test-Revised), and visuospatial perception (Judgment of Line Orientation). Alternate versions of tests were used when possible. Cognitive changes were analyzed at the group and individual level. Group level changes were assessed with paired sample t-tests (corrected for multiple comparisons). At the individual level, postoperative declines ≥ 1.5 SD from baseline were considered clinically significant.

Results: Participants' baseline intellectual functioning ranged from low average to superior (as measured by the WTAR). The mean baseline score on the Montreal Cognitive Assessment was 24.58 (range: 17 – 30). At the group level, there were no significant changes in cognitive scores from baseline to follow-up (all p values ≥ 0.635). At the individual level, one patient with MCI declined ≥ 1.5 SD on the verbal memory composite. No other patients showed declines ≥ 1.5 SD.

Conclusions: Our preliminary findings suggest that bilateral MRgFUS Vim thalamotomy is relatively safe from a cognitive perspective. However, a single patient with MCI exhibited clinically significant postoperative decline in verbal memory. Future studies with larger sample sizes are needed to investigate the factors that increase the risk of postoperative cognitive decline, including pre-existing cognitive impairment, older age, and lesion size.

Categories: Neurostimulation/Neuromodulation

Keyword 1: thalamus

Keyword 2: movement disorders

Keyword 3: neuromodulation

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Coffee Break

10:30 - 10:45am Thursday, 2nd February, 2023
Exhibit Hall - Town & Country Ballroom A

Plenary C: Developing Tools for Global Neuropsychological Assessment

Presenter: David J. Schretlen

10:45 - 11:40am
Thursday, 2nd February, 2023
Pacific Ballroom A

Abstract & Learning Objectives:

During the 20th century, neuropsychology emerged as a research and clinical specialty, predominantly—though not exclusively—in Western Europe and North America. Formation of the International Neuropsychological Society has done much to foster globalization of the discipline, though we have yet to develop neuropsychological assessment instruments that are suitable for worldwide use. Test publishers have few financial incentives to undertake the development, standardization, and normative data collection required to create cognitive tests for worldwide use. And health-related funding organizations typically prioritize disease-focused etiologic, mechanistic, and treatment research in their resource allocation. Thus, developing such tools will likely require clinical data and other contributions from the entire international community of neuropsychologists. In this address, I will focus on two approaches to developing tests and norms that are suitable to global use, along with ongoing efforts and progress to date in each. I will also appeal to every member of the international community of neuropsychologists to help turn this vision into a reality now.

Upon conclusion of this course, learners will be able to:

1. Describe two fundamental approaches to developing neuropsychological tests that are appropriate for international use.
2. Explain at least one strength and limitation of each approach to global test and regression-based norms development.
3. Assess how to personally engage in a project that aims to provide contributors with free