---

95 The Role of Gender in Cognitive Outcomes from Stroke

Emma M Brandt, Sachinkumar Singh, Mark Bowren, Amol Bhagvathi, Daniel Tranel, Aaron Boes
University of Iowa, Iowa City, IA, USA

Objective: Stroke is a prevalent disease and often produces cognitive impairment. Post-stroke cognitive impairment has been associated with challenges returning to interpersonal and occupational activities. Knowing what factors are associated with cognitive impairment post-stroke can be useful for predicting outcomes and guiding rehabilitation strategies. One such factor is gender. Previous research has not led to definitive conclusions as to whether there are gender differences in cognitive outcomes following stroke. This may be because other factors, including age at stroke onset, years of education, premorbid intelligence, and lesion volume, may account for apparent gender differences in cognitive outcomes of stroke. Here, we sought to examine whether there are gender differences in general and specific cognitive functions following stroke, beyond what can be accounted for by age at stroke onset, years of education, premorbid intelligence, and lesion volume.
Participants and Methods: Participants were 237 individuals in the chronic epoch (≥ 3 months) following ischemic stroke. Using multivariate linear regression, we examined gender as a predictor of overall cognitive functioning and specific cognitive functions, while controlling for age at stroke onset, years of education, premorbid intelligence, and lesion volume. To quantify overall cognitive functioning, we used a measure of general cognitive ability (g) and Full Scale IQ score from the WAIS. To quantify specific cognitive functions, we used scores from 16 individual neuropsychological tests.
Results: After controlling for demographic and lesion factors, men and women did not show any significant differences in overall cognitive functioning following stroke as measured by g (β = -0.01, 95% CI: -0.14 – 0.12, p = .887) or Full Scale IQ (β = -0.01, 95% CI: -2.93 – 2.27, p = .801). There were some significant gender differences on specific cognitive tests after controlling for demographic and lesion factors. Specifically, women performed better than men on the Rey Auditory Verbal Learning Test (ps < .001) and men performed better than women on the WAIS Information subtest (β = -.65, 95% CI: -0.97 - -0.33, p < .001).
Conclusions: Our findings suggest that although men and women have similar overall cognitive functioning after stroke, they show some differences in specific cognitive functions even after accounting for demographic and lesion factors. Namely, women demonstrated better performance on a test of learning while men demonstrated better performance on a test of verbal knowledge/comprehension. This information is important for clinicians as they assess cognitive outcomes in patients post-stroke and plan rehabilitation strategies.

---

96 Short-Term Blood Pressure Variability and Cerebrovascular Health in Older Adults

Isabel J Sible[1], Belinda Yew[1,2], Arunima Kapoor[3], Jung Y Jang[3], John Paul M Alitin[3], Shubir Dutt[1], Yanrong Li[3], Anna E Blanken[4,5], Jean K Ho[3], Anisa J Marshall[1], Fatemah Shenasa[3], Aimée Gaubert[3], Amy Nguyen[3], Kathleen E Rodgers[6], Virginia E Sturm[5], Daniel A Nation[3]
[1]University of Southern California, Los Angeles, CA, USA. [2]Mount Sinai, New York, NY, USA. [3]University of California Irvine, Irvine, CA, USA. [4]San Francisco Veterans Affairs Health Care System, San Francisco, CA, USA. [5]University of California San Francisco, San Francisco, CA, USA. [6]University of Arizona, Tucson, AZ, USA

Objective: Blood pressure variability (BPV), independent of traditionally targeted average blood pressure levels, is an emerging vascular risk factor for stroke, cerebrovascular disease, and dementia, possibly through links with vascular-endothelial injury. Recent evidence suggests visit-to-visit (e.g., over months, years) BPV is associated with cerebrovascular disease severity, but less is known about relationships with short-term (e.g., < 24 hours) fluctuations in blood pressure. Additionally, it is unclear how BPV may be related to angiogenic growth factors that play a role in cerebral arterial health.
Participants and Methods: We investigated relationships between short-term BPV, white matter hyperintensities on MRI, and levels of plasma vascular endothelial growth factor (VEGF) in a sample of community-dwelling older adults (n = 57, ages 55-88) without history of dementia or stroke. Blood pressure was collected continuously during a 5-minute resting period. BPV was calculated as variability independent of mean, a commonly used index of BPV uncorrelated with average blood pressure levels. Participants underwent T2-FLAIR MRI to determine severity of white matter lesion burden. Severity of lesions was classified as Fazekas scores (0-3). Participants also underwent venipuncture to determine levels of plasma VEGF. Ordinal logistic regression examined the association between BPV and Fazekas scores. Multiple linear regression explored relationships between BPV and VEGF. Models controlled for age, sex, and average blood pressure.
Results: Elevated BPV was related to greater white matter lesion burden (i.e., Fazekas score) (systolic: OR = 1.17 [95% CI 1.01, 1.37]; p = .04; diastolic: OR = 2.47 [95% CI 1.09, 5.90]; p = .03) and increased levels of plasma VEGF (systolic: ß = .39 [95% CI .11, .67]; adjusted R2 = .16; p = .007; diastolic: ß = .48 [95% CI .18, .78]; adjusted R2 = .18; p = .003).
Conclusions: Findings suggest short-term BPV may be related to cerebrovascular disease burden and angiogenic growth factors relevant to cerebral arterial health, independent of average blood pressure. Understanding the role of BPV in cerebrovascular disease and vascular-endothelial health may help elucidate the increased risk for stroke and dementia associated with elevated BPV.

Categories: Stroke/Cerebrovascular Injury & Disease (Adult)
Keyword 1: cerebrovascular disease

Correspondence: Isabel J Sible University of Southern California sible@usc.edu

---

97 Distinct Clinical and Neuroanatomic Factors Associated with Function-based versus Patient-Reported Outcome Measures After Stroke

Julie A DiCarlo[1], Abhishek Jaywant[2], Kimberly Erler[1,3], Perman Gochyyev[4], Jessica Ranford[1], Steven C Cramer[5,6], David J Lin[7,8,9,10]
[1]Center for Neurotechnology and Neurorecovery, Massachusetts General Hospital, Boston, MA, USA. [2]Weill Cornell Medicine, New York, NY, USA. [3]Department of Occupational Therapy, MGH Institute of Health Professions, Boston, MA, USA. [4]MGH Institute for Health Professions, Boston, MA, USA. [5]Department of Neurology, University of California, Los Angeles, CA, USA. [6]California Rehabilitation Hospital, Los Angeles, CA, USA. [7]Center for Neurotechnology and Neurorecovery, Department of Neurology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA. [8]Division of Neurocritical Care, Department of Neurology, Massachusetts General Hospital, Boston, MA, USA. [9]Stroke Service, Department of Neurology, Massachusetts General Hospital, Boston, MA, USA. [10]VA RR&D Center for Neurorestoration and Neurotechnology, Rehabilitation R&D Service, Department of VA Medical Center, Providence, RI, USA

Objective: Patient-reported outcome measures provide valuable insights into health status after neurologic disease, but their relationships with function-based outcome measures remain incompletely understood. Here we evaluate the relationship between these two classes of measure using dimensionality-reduction techniques in patients after acute stroke and examine their associated patterns of neuroanatomical injury.
Participants and Methods: Fifty-four adults with upper extremity motor deficits were serially assessed at four time points after stroke with functional outcome measures (Upper Extremity Fugl-Meyer, Barthel Index, modified Rankin Scale, Box and Blocks, 9- Hole Peg, Grip Strength) as well as patient-reported measures (PROMIS-Global Physical, Mental, and Social