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Paper Session 05: Head trauma and stroke related topics

2:15 - 3:45pm
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Town & Country Ballroom C

Moderated by: Lena Dobson

1 Post-stroke Apathy, Pseudobulbar Affect and Memory Loss Hinder Return-to-Work After CVA

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Objective: Post-stroke depression (PSD) and anxiety disorders are the most common psychiatric issues that occur after cerebrovascular accident (CVA), with prevalence rates of up to 50%. Less studied, post-stroke apathy and pseudobulbar affect (PBA) also occur in a subset of individuals after CVA leading to reduced quality of life. Cognitive impairments also persist, especially memory, language, and executive difficulties. Residual cognitive and emotional sequelae after CVA limit return-to-work with between 20-60% becoming disabled or retiring early. This study examined the frequency and relative contribution of cognitive, behavioral and emotional factors for not returning-to-work after CVA.

Participants and Methods: Participants included 242 stroke survivors (54% women, average age of 59.2 years) who underwent an outpatient neuropsychological evaluation approximately 13 months after unilateral focal CVA. Exclusion criteria were a diagnosis of

dementia, comprehension issues identified during assessment, multifocal or bilateral CVA, and inpatients. Predictors of return-to-work included in logistic regression analyses were psychological (depressive and anxiety disorders, apathy, PBA, history of psychiatric treatment before stroke) and neuropsychological (memory, executive functioning) variables. Depression and anxiety were diagnosed using DSM-IV-TR or -5 criteria. Apathy was operationalized as diminished goal-directed behavior, reduced initiation and decreased interest that impacted daily life more than expected from physical issues after stroke (including self- and family-report using the Frontal Systems Behavior Scale [FrSBe]). PBA was defined by the Center for Neurologic Study-Lability Scale and clinical judgment based on chart review.

Results: Post-stroke apathy persisted in 27.3% of patients 13 months after stroke, PBA persisted in 28.2% of patients (i.e., uncontrollable crying spellings not simply attributable to depression alone, uncontrollable laughing spells), anxiety disorders persisted in 18.6% of patients (mainly panic attacks), and PSD persisted in 29.8% of patients. Memory loss persisted in 67.4% of patients and executive difficulties persisted in 74.4% of patients. Thirteen months after stroke, 34.7% of individuals had returned-to-work and 47.1% had not returned-to-work. The other 18.2% were not working either at the time of their stroke or after the stroke. Logistic regression indicated that post-stroke apathy, PBA, and memory loss were significant predictors of not returning-to-work (odds ratio $p < 0.001$). Patients who experienced post-stroke apathy were 7.1 times more likely to not return-to-work after stroke ($p=0.008$), those who suffered from PBA were 4.8 times more likely to not return-to-work ($p=0.028$), and those with memory loss were 6.6 times more likely to not return-to-work ($p=0.005$). PSD, history of treatment for psychiatric issues before the stroke, presence of an anxiety disorder after stroke, and executive difficulties were not significant predictors ($p's > 0.05$).

Conclusions: Results replicate the finding that return-to-work is hindered by residual cognitive deficits after stroke and extends previous research by clarifying the multifactorial emotional and behavioral barriers to not returning-to-work. Results highlight the importance of quantifying post-stroke apathy and pseudobulbar affect in a standard neuropsychological work-up after stroke to identify candidates for services to facilitate

efforts in returning to work (e.g., vocational rehabilitation services, psychotherapy, interventions for decreased initiation).

Categories: Acquired Brain Injury (TBI/Cerebrovascular Injury & Disease - Adult)

Keyword 1: apathy

Keyword 2: stroke recovery

Keyword 3: vocation

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2 Contributions of Cardiovascular Disease Burden and Concussion History on Cognitive Function in Older Former National Football League Players.

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Objective: Traumatic brain injury and cardiovascular disease (CVD) are modifiable risk factors for cognitive decline and dementia. Greater concussion history can potentially increase risk for cerebrovascular changes associated with cognitive decline and may compound effects of CVD. We investigated the independent and dynamic effects of CVD/risk factor burden and concussion history on cognitive function and odds of mild cognitive impairment (MCI) diagnoses in older former National Football League (NFL) players.

Participants and Methods: Former NFL players, ages 50-70 (N=289; mean

age=61.02±5.33 years), reported medical history and completed the Brief Test of Adult Cognition by Telephone (BTACT). CVD/risk factor burden was characterized as ordinal (0-3+) based on the sum of the following conditions: coronary artery disease/myocardial infarction, chronic obstructive pulmonary disease, hypertension, hyperlipidemia, sleep apnea, type-I and II diabetes. Cognitive outcomes included BTACT Executive Function and Episodic Memory Composite Z-scores (standardized on age- and education-based normative data), and the presence of physician diagnosed (self-reported) MCI. Concussion history was discretized into five groups: 0, 1-2, 3-5, 6-9, 10+. Linear and logistic regression models were fit to test independent and joint effects of concussion history and CVD burden on cognitive outcomes and odds of MCI. Race (dichotomized as White and Non-white due to sample distribution) was included in models as a covariate.

Results: Greater CVD burden (unstandardized beta [standard error]; B=-0.10[0.42], p=.013, and race (B=0.622[0.09], p<.001), were associated with lower executive functioning. Compared to those with 0 prior concussions, no significant differences were observed for those with 1-2, 3-5, 6-9, or 10+ prior concussions (ps >.05). Race (B=0.61[.13], p<.001), but not concussion history or CVD burden, was associated with episodic memory. There was a trend for lower episodic memory scores among those with 10+ prior concussion compared to those with no prior concussions (B=-0.49[.25], p=.052). There were no significant differences in episodic memory among those with 1-2, 3-5, or 6-9 prior concussions compared to those with 0 prior concussions (ps>.05). CVD burden (B=0.35[.13], p=.008), race (greater odds in Non-white group; B=0.82[.29], p=.005), and greater concussion history (higher odds of diagnosis in 10+ group compared to those with 0 prior concussions; B=2.19[0.78], p<.005) were associated with higher odds of MCI diagnosis. Significant interaction effects between concussion history and CVD burden were not observed for any outcome (ps >.05).

Conclusions: Lower executive functioning and higher odds of MCI diagnosis were associated with higher CVD burden and race. Very high concussion history (10+) was selectively associated with higher odds of MCI diagnosis. Reduction of these modifiable factors may mitigate adverse outcomes in older contact sport athletes. In former athletes, consideration of CVD burden is particularly pertinent when