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Objective: Abnormalities in social and emotional behavior are the major diagnostic criteria for behavioral variant frontotemporal dementia (bvFTD). Investigators have attributed their behavioral disturbances to disease in mesial prefrontal and related networks, such as the salience network. This study examined the main neural correlates of informant-reported socioemotional dysfunction among patients with bvFTD compared to those with early-onset (before age 65) Alzheimer's Disease (EOAD).
Participants and Methods: Participants included 13 patients with bvFTD and their caregivers and 18 patients with EOAD and their caregivers. The caregivers consisted of a spouse, family member, or other informant who resided with the patient. They completed the informant-based Socioemotional Dysfunction Scale (SDS), a 40-item scale which rates common disturbances in social and emotional behavior on a five-point Likert scale (1-5). The patients underwent magnetic resonance imaging (MRI) with tensor-based morphometry (TBM) analysis of the 3D T1-weighted MRI scans. Computations of mean Jacobian values within select regions of interest (ROIs) in frontal and temporal lobes generated numerical summaries of regional volumes, and voxel-wise regressions created 3D statistical maps of the association between tissue volume and SDS total scores. Statistical analyses included independent samples t-tests group differences in ROIs and SDS scores, Pearson correlations between SDS scores and brain volumes, and multiple regression of ROIs with SDS scores and group as predictor variables.
Results: Compared to the EOAD group, the bvFTD group had significantly higher SDS scores ($p < .001$; $d = 2.24$), smaller frontal lobe volumes (specifically dorsolateral-prefrontal cortex, $p = .003$; $d = 1.24$), and larger temporal lobe volumes (specifically hippocampus, $p = .014$; $d = 0.979$). Within the bvFTD group, higher SDS scores were associated with a smaller right anterior temporal lobe (ATL; $p = .005$; $r = -.729$), especially the lateral ATLs ($p = .002$; $r = -.776$), and a smaller bilateral orbitofrontal cortex (OFC; $p = .016$; $r = -.650$). In contrast, within the EOAD group, higher SDS scores were associated with a smaller right parietal cortex ($p = .030$; $r = -.542$). In the entire sample (both bvFTD and EOAD), higher SDS scores was associated with a smaller lateral ATL volumes ($p = .019$; $r = -.431$). Regression analyses confirmed that SDS score predicted lateral ATL volume ($p = .041$; $b = -.262$) after controlling for diagnosis ($p < .001$; $b = -.692$).
Conclusions: These findings are consistent with greater socioemotional dysfunction, smaller frontal, and larger mesial temporal regions in bvFTD, when compared to EOAD. The findings, however, suggest that positively disturbed socioemotional behavior in bvFTD, as reported by caregivers, results from involvement of the right temporal lobe and the lateral temporal region, with further contribution from disease in OFC. The association of SDS scores and ATL volume across diagnostic groups suggests that this region is instrumental in socioemotional functioning and that the SDS may have diagnostic value in distinguishing the "right-temporal variant" of bvFTD.

Categories: Dementia (Non-AD)
Keyword 1: dementia - other cortical
Keyword 2: dementia - Alzheimer's disease
Keyword 3: social cognition
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59 Objectively-Measured Performance on Tests of Episodic Memory and Executive Function in Autopsy-Confirmed Chronic Traumatic Encephalopathy

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Objective: Chronic traumatic encephalopathy (CTE) is a neurodegenerative disease that can only be diagnosed at post-mortem. Revised criteria for the clinical syndrome of CTE, known as traumatic encephalopathy syndrome (TES), include impairments in episodic memory and/or executive function as core clinical features. These criteria were informed by retrospective interviews with next-of-kin and the presence and rates of objective impairments in memory and executive functions in CTE are unknown. Here, we characterized antemortem neuropsychological test performance in episodic memory and executive functions among deceased contact sport athletes neuropathologically diagnosed with CTE.
Participants and Methods: The sample included 80 deceased male contact sport athletes from the UNITE brain bank who had autopsy-confirmed CTE (and no other neurodegenerative diseases). Published criteria were used for the autopsy diagnosis of CTE. Neuropsychological test reports (raw scores) were acquired through medical record requests. Raw scores were converted to z-scores using the same age, sex, and education-adjusted normative data. Tests of memory included long delay trials from the Rey Complex Figure, CVLT-II, HVLT-R, RBANS, and BVMT-R. Tests of executive functions included Trail Making Test-B (TMT-B), Controlled Oral Word Association Test, WAIS-III Picture Arrangement, and various WAIS-IV subtests. Not all brain donors had the same tests, and the sample sizes vary across tests, with 33 donors having tests from both domains. Twenty-eight had 1 test in memory and 3 had 2+. Eight had 1 test of executive function and 46 had 2+. A z-score of 1.5 standard deviations below the normative mean was impaired. Interpretation of test performance followed the American Academy of Clinical Neuropsychology guidelines (Guilmette et al., 2020). Bivariate correlations assessed cumulative p-tau burden (summary semi-quantitative ratings of p-tau severity across 11 brain regions) and TMT-B (n=34) and CVLT-II (n=14), the most common tests available.
Results: Of the 80 (mean age= 59.9, SD=18.0 years; 13, 16.3% were Black), 72 played football, 4 played ice hockey, and 4 played other contact sports. Most played at the professional level (57, 71.3%). Mean time between neuropsychological testing and death was 3.9 (SD= 4.5) years. The most common reason for testing was dementia-related (43, 53.8%). Mean z-scores fell in the average psychometric range (mean z= -0.52, SD=1.5, range= -6.0 to 3.0) for executive function and the low average range for memory (mean z= -1.3, SD=1.1, range= -4.0 to 2.0). Eleven (20.4%) had impairment on 1 test and 3 (5.6%) on 2+ tests of executive functions. The most common impairment was on TMT-B (mean z= -1.77, 13 [38.2%] impaired). For memory, 13 (41.9%) had impairment on 1 test. Of the 14 who had CVLT-II, 7 were impaired (mean z= -1.33). Greater p-tau burden was associated with worse performance on CVLT-II (r= -.653, p= .02), but not TMT-B (r= .187, p>.05).
Conclusions: This study provides the first evidence for objectively-measured impairments in executive functions and memory in a sample with known, autopsy-confirmed CTE. Furthermore, p-tau burden corresponded to worse memory test performance. Examination of neuropsychological tests from medical records has limitations but can overcome shortcomings of retrospective informant reports to provide insight into the cognitive profiles associated with CTE.

Categories: Dementia (Non-AD)
Keyword 1: brain injury
Keyword 2: memory complaints
Keyword 3: dementia - other cortical
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60 Are all Embedded Measures Created Equal? A look at Embedded PVTs in Major Neurocognitive Disorder

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Objective: Although performance validity is critical in determining the quality and accuracy of test data, research suggests not all neuropsychologists incorporate performance validity tests (PVTs) in dementia evaluations (McGuire et al., 2019). Furthermore, well-validated embedded measures, such as Reliable Digit Span (RDS) from the Wechsler Adult Intelligence Scale – Fourth Edition (WAIS-IV),

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