Office Visit

9/11/2020
Temple Neurology TFP

Nancy Minniti, PsyD	**Frontal lobe and executive function deficit +1 more**	**Memory Loss ; Referred by Matthew Trzesniowski, DO**
Psychology	Dx	Reason for Visit

Progress Notes

Report of Neuropsychological Evaluation - Adult Outpatient

Patient Name: Francis Pereira MRN: 063986
Date of birth: 12/29/1961 Referred By: Valeriya Poukas, MD
Date Examined: 09/11/2020

Please note: Due to the circumstances surrounding COVID-19, verbal consent was obtained from Mr. Pereira to complete the initial part of his evaluation (i.e., medical record review, clinical interview, and cognitive screening) via telemedicine on 09/09/2020, as it can be completed remotely without adversely affecting the quality of care delivered. The remainder of his evaluation was performed in person on 09/11/2020, and written consent was obtained when Mr. Pereira presented to the clinic.

REFERRAL REASON:

Mr. Pereira is a 58-year-old, right-handed, Caucasian male referred for a neuropsychological evaluation in the context of a medical history significant for head injury, insular lacunar infarction, nerve damage, tremors, cirrhosis, chronic hepatitis C, hypertension, psychiatric comorbidity, prior alcohol abuse, and prior as well as current substance use. Mr. Pereira was most recently seen by Dr. Poukas on 08/31/2020, due to his concern over persistent cognitive and behavioral changes since 2012. Per her note: *In short, Mr. Francis Pereira is a 58 y.o. male who presents today for evaluation of personality and memory changes since his 2012 TBI with associated LOC of several min. his CT heads have never showed major structural abnormality that was a result of his accident. Pt has had personality, mood and memory changes since his accident. No neurocognitive eval in the past. Will refer the pt for the Neuropsychological Testing to better assess his cognitive deficits - this information will guide his future therapy. He had basic cognitive labs done within the last 1-2 yrs and those have been unremarkable- so wont repeat at this time. Will also wait for NP results to decide if he needs additional brain imaging such as MRI brain. of possible seizures and clearance for driving. Based on the description of recent episodes are do not think that these were seizures. They might have been syncopal in etiology - wil defer further work-up to the PCP.* Dr. Poukas requested this appointment to provide a comprehensive evaluation of Mr. Pereira's current neuropsychological status and to assist his treatment team with medical decision-making.

PRESENTING COGNITIVE COMPLAINTS:

Of note, Mr. Peirera was interviewed with his wife via Zoom. She was a reluctant participant as they are not getting along, and she expressed a desire to remove herself from involvement in his medical care and his case going forward. Her participation was essential in obtaining a coherent chronologic history as his responses were tangential and perseverative.

Onset and progression: Mr. Pereira was reportedly a passenger in a MVA on 01/04/2012. He recalls falling and sustaining an injury to his neck and head, described as as hitting his head on a

bus seat. Mr. Pereira remembers details leading up to and immediately following the accident (i.e., “I was holding breakfast in my hands. I did not spill it.”) He denied loss of consciousness. Mr. Pereira stated that he did not seek medical attention right away, but went a week later where his cervical spine injury was discovered. He was diagnosed with cervical disk herniation and underwent an anterior cervical discectomy and fusion (ACDF) at C5-C6 and C6-C7 on 01/17/2012. Mr. Pereira reported having sustained a neck fracture in this accident, but it was not noted in this record from Jefferson Hospital. He subsequently presented to TUH with complaints of patchy numbness throughout his body, weakness of his hand muscles, and balance issues. He was evaluated in PM&R by Dr. Reed Williams, who stated that since Mr. Pereira’s accident and subsequent ACDF, he had gone to multiple physicians, and undergone multiple treatment modalities. He reported pain described as "pins and needles through my whole body". Relieving factors include warmth/heat. Associated symptoms include "no sensation" from his neck down and leg spasms. He has had multiple falls due to his ambulatory dysfunction. Following a comprehensive workup, Dr. Williams diagnosed him with peripheral sensorimotor polyneuropathy of the lower limbs, and referred him for aquatherapy and to a wheelchair clinic. He also complained of both GI issues (constipation) and erectile dysfunction, which Dr. Williams thought might be due to severe polyneuropathy. Mr. Pereira underwent workup for additional neck surgery but it was deemed unwarranted based on findings. He also experienced multiple medical issues, including dysphagia, cervical spine osteophytes, compensated cirrhosis, thrombocytopenia, prior history of HCV status post treatment with SVR, a periumbilical hernia, hypertension, and seizure-like episodes. He was recently evaluated for hernia surgery but was not a candidate at this time due to risk of complications.

Mr. Pereira’s notable dysarthria was his most bothersome complaint; which he indicated began approximately two years after the accident. He stressed people have trouble understanding him, and likened it to having “a mouth full of marbles” when he speaks. Mr. Pereira further emphasized several people, including family members, tease him for his speech disturbance. Mr. Pereira also highlighted significant decline in his functional mobility. He believes he cannot “move around like I used to,” and said activities take significantly longer to complete than before, and require greater effort. His wife Mrs. Pereira added Mr. Pereira was mostly bedridden and received substantial help from others for the first two years after the accident. He received limited PT/OT for his injuries due to insurance barriers, which has resulted in considerable deterioration in his physical stature overall. Mrs. Pereira believes his mobility is “absolutely getting worse over time.”

Mrs. Pereira said Mr. Pereira’s cognition “loops,” which detailed a perseverative tendency to “get off track of what the question was,” and revert back to details associated with the accident. Mr. Pereira was considerably tangential and perseverative during the interview, and often did not respond appropriately to questions, either due to lack of understanding or perseverative behavior. Mrs. Pereira further commented on appreciable changes to Mr. Pereira’s attention, memory, executive functioning (please see below), and overall behavior (please see below) following his injury. She explained that Mr. Pereira confuses details, which also interferes with his ability to accurately store and recall information. She stated that Mr. Pereira used to have an “excellent” memory, but that it has since largely declined. She specifically indicated he makes facial recognition errors. She also reported that he has increased verbal aggression, and has made aggressive threats but no violent behavior. Mr. Pereira attributes his cognitive dysfunction to his bus accident.

Mr. Pereira is currently in litigation against the driver who caused his injury. He reportedly recently saw a neurologist as part of an independent medical evaluation. He filed a workers’ compensation claim in 2015 related to the bus accident.

Orientation/confusion: Problems with maintaining orientation were endorsed. Mrs. Pereira said Mr. Pereira largely relies on his phone, a calendar, and TV for the date. Their daughter also updates Mr. Pereira’s schedule of events for him.

Memory: Mr. Pereira believes he has a strong memory for dates and telephone numbers. However; as stated above, problems with memory were endorsed by Mrs. Pereira. She thinks Mr. Pereira sometimes benefits from reminders and cues.
Attention/Concentration/Focus: Changes to attentional capacity and focus were endorsed. Mrs. Pereira emphasized Mr. Pereira's attention span is "short, unless the conversation has to do with him." She stated Mr. Pereira frequently changes the topic during conversation, which typically reverts back to details surrounding his pending lawsuit or the MVA.
Speed of information Processing: Problems processing information was not asked about.
Visuospatial: Changes in visuospatial/perceptual skills were endorsed, including blurred vision and poor facial recognition.
Language: Word finding problems were endorsed, which Mrs. Pereira stated has gotten progressively worse since 2012. Speech production problems were endorsed, such that his dysarthria causes others to have trouble understanding him. As stated above, Mrs. Pereira emphasized the content of Mr. Pereira's speech is considerably disorganized. Mrs. Pereira endorsed comprehension difficulties, which also interferes with his ability to communicate with others properly.
Executive functioning: Problems with high level executive skills were endorsed. Mr. Pereira described difficulty with emotional regulation, indicating certain things set him "over the edge." Mrs. Pereira further endorsed problems associated with organization, impulsivity, and judgment. Mrs. Pereira will help him organize certain things (e.g., medical appointments), and noted his attorney helps Mr. Pereira organize his paperwork. She said he will make sexual jokes that are inappropriate to the current situation; a behavior that began approximately 4-5 years ago. Mrs. Pereira also reported that Mr. Pereira recently called the police on their young grandson, who currently lives with them and is completing his school days virtually from home. Mr. Pereira was upset that he could be seen in the video for his grandson's virtual classroom. He also reportedly felt his grandson was "taking over the computer," but Mrs. Pereira stressed that Mr. Pereira does not understand the current significance of virtual learning in the context of the novel coronavirus pandemic.
Motor/Gait: Changes in gait and/or motor function following his accident were endorsed, including falls/loss of balance and tremors. He uses a cane, wheelchair, and motorized scooter to help him ambulate. Mrs. Pereira said he recently fell down the steps, but strongly suspects it was due to his poor choice in footwear, as he constantly wears sandals. Mr. Pereira's tremors began following his accident, but are well-controlled if he takes his medication.
Sensory changes: Change in sensory functioning was endorsed. He and Mrs. Pereira expressed Mr. Pereira is "completely numb from the neck down." He further expressed concerns over his safety, because he has no sensation at extreme temperatures.
Personality/behavioral: Personality changes following his injury were endorsed and characterized as increased anger, as well as physical and verbal aggression. Mrs. Pereira stated his thoughts are violent (e.g., blowing up insurance company); however, Mr. Pereira denied former and current plans of following through with his threats. He denied being physically aggressive towards others, but Mrs. Pereira disagreed and cited a former incident when Mr. Pereira tried to punch his wife (see below). She added that, ever since his accident, Mr. Pereira constantly insults and belittles her. Mrs. Pereira also emphasized complaints over Mr. Pereira's relative lack of empathy. She said Mr. Pereira is invested "only in himself and his injury," and is generally not interested in the needs of others.

BASIC/INSTRUMENTAL ACTIVITES OF DAILY LIVING:

Mrs. Pereira stated Mr. Pereira now requires assistance with "everything."
Personal Hygiene: Mrs. Pereira said he needs to be monitored while showering, due to his increased fall risk.
Cooking/Cleaning: Mr. Pereira is independent and this represents no change. However, Mrs. Pereira noted he will often start household projects without completing them (e.g., failing to dispose of dirt and debris after sweeping it into a pile).
Financial Management: Mr. Pereira is independent and this represents no change.

Medication/Appointment Management: Mr. Pereira is independent and this represents no change. He reportedly keeps his medications in his pockets at all times because he does not trust others with them.
Driving: Mr. Pereira has not been a driver since 2012. Mr. Pereira stated he fell at home due to low BP, but that his medical team did not rule out the possibility of a seizure. The DMV revoked his license. He is currently working on getting his license reinstated.

NEUROIMAGING:
Mr. Pereira underwent head CT without contrast on 09/10/2020. The report included the following impressions: *No acute intracranial hemorrhage or extra-axial fluid collection is identified. No mass lesion or mass effect. Gray-white matter differentiation is preserved. Ventricles and sulci are within normal limits. The visualized paranasal sinuses, mastoid air cells and middle ear cavities are clear. The calvarium is intact.*

Mr. Pereira was evaluated by Dr. Poukas on 08/31/2020. Dr. Poukas compared findings from two prior noncontrast head CT scans, one conducted on 08/21/2015 and the other on 10/10/2012. Dr. Poukas included the following impressions in her review: *The sulci and ventricles are within normal limits in size for patient's age. There is a focal indeterminate hypodensity in the left subinsular cortex which is new from the prior study. There is no acute intracranial hemorrhage, CT evidence of acute transcortical infarct, mass effect, midline shift or extra-axial fluid collection. There is mild mucosal thickening in the ethmoid air cells. The remaining visualized paranasal sinuses, mastoid air cells, and middle ear cavities are clear and well-aerated. The orbits and calvarium are intact without acute fractures or focal bony lesions. His CT heads have never showed major structural abnormality that was a result of his accident*

Dr. Poukas also commented on three separate home incidents Mr. Pereira experienced on 06/06/2017 (i.e., falls, with trembling and eyes rolled backward, and forgetful afterward), which prompted medical attention. Dr. Poukas concluded no epileptiform activity was present at the time of Mr. Pereira’s routine EEG monitoring procedure, and suggested the events might have been syncopal in nature.

NEUROLOGIC HISTORY:
Head Injury: Mr. Pereira endorsed a history of head trauma (see above). When asked this question, he also indicated numerous falls since the MVA, but without LOC.
Seizure/Epilepsy: Denied. His medical chart is significant for a history of seizure-like events (see above).
Stroke: Denied.
Headaches/Migraines: Denied.

FAMILY HISTORY
Mr. Pereira’s parents both died from a CVA. His mother’s health history was significant for diabetes and high BP. Paternal history was significant for cirrhosis and hepatitis C. Family history of dementia was denied.

DEVELOPMENTAL HISTORY
Mr. Pereira denied a history of birth-related complications and developmental delays. Incidence of major childhood illness or injury was denied.

PSYCHOSOCIAL HISTORY
The Pereiras are married, and they have three daughters together. He and Mrs. Pereira characterized their marital relationship as strained. There were aggressive arguments between the two over the course of the visit. Mrs. Pereira is visibly distressed by Mr. Pereira’s behavioral

changes as well as their marriage overall, and stated that she wants a divorce. They are not interested in participating in marital counseling at this time.
Current Living Situation: Mr. and Mrs. Pereira currently live in a house together with their one daughter and a grandson, who is currently completing his schooling virtually from home.
Quality of Social Support: Mrs. Pereira stated Mr. Pereira has very limited contact with members of his extended family. She believes "he will be alone without help" if they get a divorce.
Typical day: Mr. Pereira indicated he is largely homebound, where he "eats, sleeps, and smokes marijuana." He reported participating in self-initiated home therapy, but Mrs. Pereira indicated this is largely not the case (i.e., infrequent walks to a corner store, occasional wall push-ups). She described a relatively inactive schedule overall, stating he "sits or lies in bed all day."

EDUCATIONAL HISTORY

Highest educational attainment: Mr. Pereira started but did not complete 11th grade. He did receive his GED.
History of learning disability: Denied
History of ADHD: Denied
Academic performance: Mr. Pereira reported he was generally an average student (i.e., A's and B's).
History of failed grades: Denied

EMPLOYMENT HISTORY

Current level of employment: Disabled
Current or former job title: Mr. Pereira's former job title was bus attendant. He stated he is still a mall Santa Claus, which he has been doing for the past 30 years. His work history is also notable for a variety of jobs, including sheetrock, home repair, security, cook, and a manager of retail establishment.
Last date of employment: 2012
Plans to return to work: Unknown
Perceived Barriers: Physical disability and cognitive deficits
Additional Financial Support/Disability: Mr. Pereira has workers' compensation insurance.

PSYCHOLOGICAL HISTORY:

Psychological Hx: Mr. Pereira reports currently experiencing psychological distress, which began following his 2012 accident. This presents primarily as anger issues. He has made repeated violent threats against others (e.g., blowing up insurance agency). As previously stated, Mr. Pereira denied intentions, both previously and at present, to follow through with these threats. Mrs. Pereira further emphasized that these are not credible. Mr. Pereira also endorsed having depressive symptomatology, over the loss of his magazine and inability to play the drums. Dr. Poukas included diagnoses of MDD and PTSD in her most recent report (08/31/2020). Mr. Pereira has been followed by a therapist since January or February of 2020. Due to the coronavirus pandemic, they are currently conducting their sessions via Zoom. Mr. Pereira was previously treated at COMHAR for his anger issues. Mrs. Pereira highlighted that, prior to his accident, Mr. Pereira utilized effective coping strategies (e.g., playing the drums) when he was upset, but that his mood was generally unremarkable overall. History of disorders associated with disruptive mood/behavior was denied.
Current Mood: Mr. Pereira stated he does his best to remain "pleasant" despite being relatively homebound. He described his current situation as "Nine years of unauthorized house arrest." Mrs. Pereira described him as "grumpy" most days.
Psychosis (Past/Present): Denied
Suicidality (Past/Present): Denied
Homicidality: Mr. Pereira made a particular comment about harming his wife when he entered the testing room and after a public argument. Mr. Pereira was visibly agitated at the time. When a risk assessment was completed after he calmed down, he stated that this was an empty threat without an imminent plan for harm.

Sleep: Mr. Pereira endorsed a history of sleep disturbance ever since he injured his neck. He emphasized distress over waking up every 2-3 hours. Mrs. Pereira denied a history of unusual sleep behaviors (e.g., snoring, thrashing/moving, sleepwalking). However, she did cite a single incident where Mr. Pereira reportedly became upset by something he heard in his sleep and attempted to hit her.
Appetite: Mrs. Pereira stated Mr. Pereira experiences regular constipation, which causes his daily appetite to fluctuate (i.e., "He either eats a lot or nothing at all.") Otherwise, issues with appetite disturbance or unusual food preferences, binge eating, etc. were denied.

SUBSTANCE USE
Tobacco Use: Current use denied. Mr. Pereira reportedly quit smoking approximately 6 months ago. Tobacco usage varied with his perceived stress, but was generally half a pack daily.
Alcohol Use: Current use denied. He stated his alcohol cessation was "years ago." Prior alcohol abuse was denied, but his medical chart indicates a history of alcohol abuse.
Other Drugs: Endorsed. Mr. Pereira smokes marijuana daily. He reported former recreational polysubstance use as well.

CURRENT MEDICATIONS:
- ALBUTEROL, REFILL, IN, Inhale into the lungs.
- bisacodyl (DULCOLAX, BISACODYL,) 10 mg suppository (Expired), Place 1 suppository rectally daily for 10 days.
- bisacodyl (DULCOLAX, BISACODYL,) 5 mg EC tablet, Take 1 tablet by mouth nightly.
- diazepam (VALIUM) 5 mg tablet, Take 10 mg by mouth 2 times daily.
- docusate sodium (COLACE) 100 mg capsule, Take 1 capsule by mouth 3 times daily.
- ergocalciferol, Vitamin D2, (VITAMIN D) 50,000 unit Capsule, Take 1 capsule by mouth every 7 days.
- ibuprofen (ADVIL,MOTRIN) 200 mg tablet, Take 200 mg by mouth every 6 hours as needed for Pain.
- lisinopril (PRINIVIL,ZESTRIL) 10 mg tablet, Take 40 mg by mouth daily.
- senna (SENNA) 8.6 mg tablet, Take 2 tablets by mouth daily (before lunch) for 360 days.
- tadalafil (CIALIS) 10 mg tablet, Take 1 tablet by mouth as needed for Erectile Dysfunction

TESTS ADMINISTERED
Animal Fluency Test, Beck Depression Inventory, 2nd ed. (BDI-II), Boston Naming Test (BNT), California Verbal Leaning Test, 2nd ed. (CVLT-II), Clock Drawing Test, Controlled Oral Word Association Test (COWAT), Everyday Cognition (E-Cog), Frontal Behavioral Inventory (FBI), Judgement of Line Orientation, short form (JoLO), Montreal Cognitive Assessment, Neuropsychological Assessment Battery (NAB), selected tests, Symbol Digit Modalities Test, Oral Version (SDMT), Trails A & B, Wechsler Adult Intelligence Scale (WAIS-IV), selected tests, Wechsler Memory Scales, 3rd ed. (WMS-III), selected tests, Wide Range Achievement Test, 4th ed. (WRAT-4), and Wisconsin Card Sorting Test (WCST).

BEHAVIORAL OBSERVATIONS
Mr. and Mrs. Pereira consented to being interviewed via Zoom, and Mr. Pereira was tested in-person. He arrived on time to the current evaluation, and was accompanied by Mrs. Pereira. The Pereiras sat apart in the waiting room and were engaged in a loud argument with each other when the examiner arrived. Mr. Pereira was appropriately dressed, but grooming was noted as mildly unkempt. Mr. Pereira was oriented to place, time, and situation. He made adequate eye contact during the clinical interview and the testing session. Mr. Pereira was considerably agitated at the beginning of his evaluation, to the extent that he was visibly shaking. He cited several sources for his distress (e.g., police breaking into his home early that morning; wife bullying him); and expressed concern he would not be able to concentrate, as well having a low interest overall, to

participate in testing on 09/11/2020. After additional time was spent in the beginning to build rapport and explain the significance of his role in the evaluation, Mr. Pereira agreed to proceed with his evaluation. However, moderate irritation and distractibility continued to persist throughout the entire testing session (e.g., “I just completely lost track of what we’re doing”). This was further evidenced by frequent tangential speech content. He was highly perseverative on his aforementioned sources of distress. He demonstrated low frustration tolerance and low task persistence, for which frequent encouragement and task redirection was required to keep Mr. Pereira engaged. Mr. Pereira was also markedly disinhibited, often interrupting the examiner and attempting to begin tasks before complete instruction was provided. Of additional note, Mr. Pereira momentarily dozed off several times throughout his appointment. Due to Mr. Pereira’s reduced manual dexterity, his battery did not include certain graphomotor tasks that are administered in a typical battery. Mr. Pereira put forth adequate performance on embedded measures of test engagement, which were administered throughout the entire battery.

Assistive devices: Mr. Pereira informed the examiner he uses reading glasses, but left them at home on the day of testing. Visual deficits did not appear to interfere with his performance.
Need for breaks: No
Hearing impaired: No
Pending litigation or other secondary gain present: Yes, Mr. Pereira is in litigation.

TEST RESULTS

Mental Status: Mr. Pereira was administered a cognitive screening instrument to get a rapid estimate of his current ability. His performance was impaired overall (MoCA 21/30). Mr. Pereira demonstrated difficulty on tasks associated with cognitive flexibility, basic auditory attention, serial subtraction, sentence repetition, verbal fluency, and abstract reasoning. He also had difficulty with free recall of a 5-word list (2/5 words recalled). He benefitted from cues and multiple choice options (4/5 correct). His clock drawing was unremarkable.

Estimated Premorbid Ability: Based on performance on a verbal reading measure generally believed to be resistant to cognitive decline, Mr. Pereira's premorbid intellectual ability was estimated to be in the average range. His performance was equivalent to an 11th grade reading level. Qualitatively, some of Mr. Pereira’s errors appeared to be secondary to impulsivity and inattentiveness (i.e., pronouncing “alcove” as “above”). He was able to self-correct for these types of errors with redirection.

Attention and Information Processing: As stated above, Mr. Pereira exhibited relatively poor sustained attention throughout testing. He performed in the mildly impaired range on a digit repetition task assessing basic auditory attention and working memory. This was largely driven by Mr. Pereira’s low score on a numerical sequencing trial, which was markedly lower than on the other two trials due to set los errors. Information processing and oral motor speed was in the below average range on a timed measure of coded symbolic transcription. Performance fell in the average range on a task requiring graphomotor speed, visual scanning and numeric sequencing ability, with one impulsive error.

Executive Functions: Mr. Pereira’s performance on a series of simple and complex mental control activities was in the average range. His ability to identify similarities between basic concepts was in the average range. However, his responses included set loss errors on items that required Mr. Pereira to think more abstractly. Additionally, the content of his responses were personalized to his current situation. Verbal fluency was in the mildly-to-moderately impaired range following a letter cue. During the administration of this task, Mr. Pereira demonstrated low frustration tolerance (i.e., smacked table) as well as low task persistence due to his perceived trouble with the task and waning energy (i.e., “I need something to eat”). He tried to discontinue early on two out of the three trials. Mr. Pereira’s performance was in the average range for semantic (i.e., category) stimuli. He performed in the average range on a timed task of divided

attention and mental flexibility requiring dual sequencing, with no errors. Performance on a measure of novel problem-solving and mental flexibility fell within normal limits overall. However; consistent with his behavior on other measures, Mr. Pereira's impulsivity momentarily interfered with his ability to maintain a consecutive response set he otherwise had firmly established. Performance on the clock drawing measure fell in the normal range.

Language Functions: Mr. Pereira's expressive speech was appropriate in volume, rate, tone and prosody, but characterized by moderate dysarthria. As previously stated, spontaneous speech was considerably disinhibited and tangential. Comprehension was poor on casual observation, as he needed questions restated and he provided inappropriate responses to questions during his interview, suggesting poor understanding. Confrontation naming fell in the average range, but with no benefit from phonemic cues. Again, verbal fluency following a letter cue was in the mildly-to-moderately impaired range and in the average range for semantic (i.e., category) stimuli.

Visuospatial Functions: Performance on a measure of line discrimination fell within normal limits.

Learning and Memory: *Verbal:* Acquisition of a 16-item word list was in the mildly-to-moderately impaired range overall (items recalled across trials: 3/6/4/3/8), with inconsistent recall and a poor learning curve. Of particular note, Mr. Pereira was easily overwhelmed by the length of the list, and interrupted the examiner to express frustration as the list was read aloud to him. Mr. Pereira was easily distracted and tangential across several immediate recall trials, for which he required frequent redirection and encouragement to try his best. He also showed a significant recency effect (i.e., recalling words presented at the end of the list, rather than at the beginning or the end). After presentation of a distractor list, free recall of the target list fell in the mildly-to-moderately impaired range, with two words recalled. Recall following categorical cues was also in the mildly-to-moderately impaired range (five words recalled). After an extended delay, free and cued recall of the word list was similarly in the mildly-to-moderately impaired range (two and five words recalled, respectively). The pattern of his scores suggests his memory did benefit some from assistance. Discrimination of target words from foils was in the mildly impaired range, with an average number of hits (13 true positives) and an impaired number of false positive (10 false positives). Mr. Pereira's ability to learn and recall a short story was in the average range for both immediate and delayed recall trials. Retention of the previously learned story was in the mildly impaired range, with 86% retention.

Emotional Functioning/Functional Cognition: On a questionnaire assessing current and recent symptoms of depression, Mr. Pereira endorsed a severe level of depressive symptomatology. Significant elevations were indicated on items associated with the following symptoms: loss of pleasure, punishment feelings, and loss of interest in sex.

Mrs. Pereira also completed a behavioral inventory on his behalf, which assessed the perceived presence and degree of Mr. Pereira's decline in daily functional cognition across domains of language, memory, visuospatial ability and executive functioning. Her report of Mr. Pereira's decline was in the impaired range, and consistent with individuals diagnosed dementia.

<u>SUMMARY/IMPRESSIONS</u>
A comprehensive neuropsychological evaluation was requested for Mr. Pereira due to persistent cognitive and behavioral complaints following a work-related injury in 2012. Mr. Pereira's medical history is significant for cervical herniation s/p ACDF, cirrhosis, chronic hepatitis C s/p treatment, hypertension, psychiatric comorbidity, prior alcohol abuse, and prior as well as current substance use. Complications and problems since his injury and surgery include sensory loss, nerve damage, tremors, dysphagia, dysarthria, cervical spine osteophytes, hernia, decreased mobility, balance problems, and cognitive decline. His wife reported significant change in behavior, personality and cognition, including memory interference and confusion, perseverative behaviors,

disorganized speech, increased verbal aggression and hostility, decreased motivation, reduced empathy, and poor auditory comprehension.

Mr. Pereira's performance on a rapid screening measure of global cognitive functioning was impaired overall (MoCA 21/30). Results of his comprehensive neuropsychological assessment did highlight areas of preserved neurocognition, including relative strengths in aspects of verbal ability (i.e., word reading, concept formation, semantic fluency, confrontational naming, and learning and retention of a verbal narrative), simple-to- complex graphomotor sequencing, and visuospatial discrimination. Conversely, Mr. Pereira showed mild-to-moderate impairment for learning and memory of verbal information presented in an unstructured format, as well as with multiple aspects of his executive functioning (i.e., sustained complex attention, phonemic fluency). His learning style was notably disorganized and inconsistent; he demonstrated vulnerability to memory interference and was unable to effectively discriminate between target and nontarget stimuli. Prominent executive dysfunction was observed behaviorally over the course of the evaluation. Mr. Pereira exhibited poor sustained attention, tangential speech, disorganization and vulnerability to set loss errors, impulsivity and susceptibility to careless errors, perseverative speech, and emotional dysregulation. Mr. Pereira is currently endorsing a severe level of depressive symptomatology.

In summary, Mr. Pereira evidenced mild cognitive impairment overall, with deficits apparent in high level executive skills (i.e., poor self-monitoring, vulnerability to memory interference, distractibility, set loss, task impersistence, disorganization, weak memory retrieval, impaired generative fluency following a letter cue) However, his behavior was more marked by frontal/executive dysfunction, including perseverative speech, disinhibition, emotional lability, impulsivity, and tangential speech content. He exhibited poor auditory comprehension on clinical interview, often not understanding or providing appropriate responses to questions. His wife reported significant personality changes (i.e., hostile, mean, verbally abusive, reduced empathy) and impaired memory and problem-solving. She endorsed substantial functional decline in the past decade in a range consistent with those diagnosed with dementia.

The etiology of Mr. Pereira's cognitive and functional decline is unclear. Mr. Pereira believes that his work-related accident is the cause of his difficulties. While frontal lobe injuries are common in TBI, head trauma seems less likely given the description of his accident; specifically, he did not experience a loss of consciousness or mental status change sufficient to warrant medical attention, there is a lack of traumatic findings on brain imaging and a lack of posttraumatic amnesia. These factors are typically present when an individual has sustained permanent and debilitating neurologic injury. Given his frontal/executive dysfunction and personality changes, there is concern of an incipient neurodegenerative process. A diagnosis of behavioral variant frontotemporal dementia (bv-FTD) should be in his differential diagnosis. In support of a diagnosis of bv-FTD are the following symptoms: decline in personal and interpersonal conduct, tangential speech, perseveration, observed and reported executive dysfunction, disinhibition, irritability, poor motivation, weak task persistence, and impulsiveness. Mr. Pereira would benefit from further work-up, such as an MRI and possibly followed by an FDG-PET scan of the brain to assist in the differential, and he will likely require continued neurologic and neuropsychologic monitoring. His 2012 injury and subsequent prolonged medical problems and legal case likely contribute to his psychiatric status, but his depression would not account for the constellation of symptoms and cognitive impairment observed in this evaluation. Chronic marijuana use may also be contributory to his cognitive malfunction, but would also not account for the degree of personality and cognitive changes observed.

RECOMMENDATIONS

1. Mr. Pereira should return to Dr. Poukas to review the results from this evaluation, in the context of his continued medical care.

2. Given the concern for a neurodegenerative process and the risk of continued decline in cognition and functional independence, it is recommended that Mr. Pereira assign a power of attorney for medical and financial matters, particularly in light of a possible marital dissolution. Mr. Pereira should arrange for a higher level of care and supervision, in the event of continued decline. Presently, Mr. Pereira should receive intermittent daily supervision with instrumental activities of daily living, due to his executive dysfunction, as this presents the risk of error that can threaten his health and financial well-being. Intact memory and executive functioning skills are necessary for sound judgment and reasoning capacity, evaluating decisions, anticipating consequences and planning for the future.

3. Due to his increased fall risk, Mr. Pereira's environment should be thoroughly evaluated for potential safety hazards, and appropriate safeguards should be promptly implemented. To the fullest extent possible, he should be carefully monitored each time he transitions to an upright and/or ambulatory position. Mr. Pereira's absence of sensation below the neck warrants caution to ensure prevention of bodily injury from exposure to extreme temperatures, wounds, or other sources, and he should be inspected by a caregiver regularly for undetected injury.

4. Mr. Pereira would likely benefit from specialized consultation with a geriatric psychiatrist to assist with controlling his irritability and increased aggression.

5. Mr. Pereira would benefit from a home health aide, to assist with activities of daily living (e.g., cooking and cleaning).

6. Mr. Pereira's family should assist with implementing compensatory strategies to circumvent impairment in memory and executive functioning, such as the following:
   a. Repeat information back to the person who presented it to ensure comprehension and to facilitate encoding.
   b. Keep a large daily calendar for appointments and to-do items. Visual cues and reminders should be placed for important information.
   c. Reduce distractions when to-be-learned information is being presented. This may include turning off background noise, moving to a quiet environment, or moving closer to the source of information.
   d. He is encouraged to put important belongings in the same place at home, especially frequently used items such as wallet, keys, glasses, etc.
   e. Synchronizing electronic calendars and alarms for appointments, medication schedules and other important events

7. Mr. Pereira is encouraged to adhere to a routine schedule to improve his sleep hygiene. More consistent and sufficient sleep may help to mitigate short and long-term risks to his cognition and overall health.

8. Mr. Pereira should be encouraged to engage in cognitively stimulating activities (e.g., Sudoku, jigsaw puzzles), or resuming and/or pursuing new hobbies to stimulate his cognitive functioning and preclude further cognitive decline. Learning new skills has been shown to promote cognitive health and slow the rate of cognitive decline. This may further help to ameliorate some of his psychological distress.

9. The following websites have helpful information regarding bv-FTD and dementia and have links to a variety of caregiver resources:
   a. Association for Frontotemporal Degeneration: http://www.theaftd.org/
   b. Family Caregiver Alliance: http://caregiver.org/caregiver/jsp/content_node.jsp?nodeid=573

c. UCSF Memory and Aging Center: http://memory.ucsf.edu/ftd/
d. The Alzheimer's Association: www.alz.org
e. National Institute on Aging: www.nia.nih.gov/alzheimers

10. Mr. Pereira should return in one year for a follow-up neuropsychological evaluation, to help determine if his injury is static or progressive.

Thank you for the opportunity to conduct this evaluation.
Nancy Minniti Psy.D., ABPP-CN

As part of this visit, two hours were spent carrying out the clinical interview and neurobehavioral status exam (96116/96121). Three hours were spent for neuropsychological evaluation services (96132/96133) by a professional, including reviewing relevant medical records, integration of patient data, clinical decision making, treatment planning, counseling and communicating with the patient or patient proxy, as well as report writing. Thirty minutes of testing by professional was completed (96136), in addition to 2.5 hours of technician testing (96138/96139).

DOMAIN	MEASURE	RAW	STANDARDIZED SCORE	%ile	DESCRIPTIVE RANGE
PREMORBID	WRAT-4	58	SS= 92	30	Average; GE= 11.6
COGNITVE SCREENER	MoCA	21/30	---	---	Impaired
ATTENTION/ PROCESSING SPEED/FRONTAL-EXECUTIVE	WAIS-IV Digit Span	18	T= 39	14	Mild Impairment
	WAIS-IV Similarities	23	T= 50	50	Average
	WMS-III Mental Control	24	T= 50	50	Average
	SDMT Oral	40	T= 40	16	Below Average
	Trails A	33"	T= 52	58	Average
	Trails B	101"	T= 47	38	Average
	COWAT	17	T= 30	2	Mild-to-Moderate Impairment
	Animal Naming	18	T= 49	46	Average
	WCST-64 Categories	3	---	>16	Within Normal Limits
	WCST-64 FMS	1	---	---	---
	WCST-64 Errors	23	T= 42	21	Below Average
	WCST-64 PSV Err	12	T= 45	30	Average
	WCST-64 NonPSV Err	11	T= 42	21	Below Average
	WCST-64 Conceptual	38	T= 45	30	Average
VISUAL-SPATIAL/ CONSTRUCTIONAL	JoLo	15	---	---	Within Normal Limits

	Clock Drawing	10	---	---	Normal
LANGUAGE	BNT	56	T= 58	58	Average
MEMORY	CVLT-II Trials 1-5	24	T= 30	2	Mild-to-Moderate Impairment
	CVLT-II SDFR	2	Z= -2	2	Mild-to-Moderate Impairment
	CVLT-II SCDR	5	Z= -2	2	Mild-to-Moderate Impairment
	CVLT-II LDFR	2	Z= -2	2	Mild-to-Moderate Impairment
	CVLT-II LDCR	4	Z= -2	2	Mild-to-Moderate Impairment
	CVLT-II Recog Hits	13	Z= -0.5	32	Average
	CVLT-II Recog FP	10	Z= 2	98	Mild-to-Moderate Impairment
	CVLT-II Discrim (d')	1.4	Z= -1.5	7	Mild Impairment
	NAB Story Immed	52	T= 47	38	Average
	NAB Story Delay	32	T= 54	66	Average
	NAB Story % Reten	86	---	15	Mildly Impaired
EMOTIONAL FUNCTIONING/ FUNCTIONAL COGNITION	BDI-II	34	---	---	Severe
	E-Cog* Total	3.10	---	---	Dementia

*Higher scores indicate greater impairment (Range = 1-4)

KEY
Z-scores (Z): Mean = 0; Standard Deviation = 1
T -scores (T): Mean = 50; Standard Deviation = 10
IQ, Index, and Standard Scores (SS): Mean = 100; Standard Deviation = 15
Scaled Scores (ScS): Mean = 10; Standard Deviation = 3