CASE IN POINT

Role of Speech Pathology in a Multidisciplinary Approach to a Patient With Mild Traumatic Brain Injury

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Speech-language pathologists can fill a unique need in the treatment of patients with several conditions that are seen regularly in primary care.

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Fed Pract. 38(3):136-139.
doi:10.12788/fp.0097

Speech-language pathologists (SLPs) are integral to the comprehensive treatment of mild traumatic brain injury (mTBI), yet the evaluation and treatment options they offer may not be known to all primary care providers (PCPs). As the research on the management and treatment of mTBI continues to evolve, the PCPs role in referring patients with mTBI to the appropriate resources becomes imperative.

mTBI is a common injury in both military and civilian settings, but it can be difficult to diagnose and is not always well understood. Long-term debilitating effects have been associated with mTBI, with literature linking it to an increased risk of developing Alzheimer disease, motor neuron disease, and Parkinson disease.[1] In addition, mTBI is a strong predictor for the development of posttraumatic stress disorder (PTSD). Among returning Iraq and Afghanistan service members, the incidence of mTBI associated mental health conditions have been reported to be as high as 22.8%, affecting > 320,000 veterans.[2-5]

The US Department of Veteran Affairs (VA) health care system offers these returning veterans a comprehensive, multidisciplinary treatment strategy. The care is often coordinated by the veteran's patient aligned care team (PACT) that consists of a PCP, nurses, and a medical support associate. The US Department of Defense (DoD) and VA also facilitated the development of a clinical practice guideline (CPG) that can be used by the PACT and other health care providers to support evidence based patient-centered care. This CPG is extensive and has recommendations for evaluation and treatment of mTBI and the symptoms associated such as impaired memory and alterations in executive function.[6]

The following hypothetical case is based on an actual patient. This case illustrates the role of speech pathology in caring for patients with mTBI.

CASE PRESENTATION

A 25-year-old male combat veteran presented to his VA PACT team for a new patient visit. As part of the screening of his medical history, mTBI was fully defined for the patient to include "alteration" in consciousness. This reminded the patient of an injury that occurred 1 year prior to presentation during a routine convoy mission. He was riding in the back of a Humvee when it hit a large pothole slamming his head into the side of the vehicle. He reported that he felt "dazed and dizzy" with "ringing" in his ears immediately following the event, without an overt loss of consciousness. He was unable to seek medical attention secondary to the urgency of the convoy mission, so he "shook it off" and kept going. Later that week he noted headache and insomnia. He was seen and evaluated by his health care provider for insomnia, but when questioned he reported no head trauma as he had forgotten the incident. Upon follow-up with his PCP, he reported his headaches were manageable, and his insomnia was somewhat improved with recommended life-style modifications and good sleep hygiene.

He still had frequent headaches, dizziness, and some insomnia. However, his chief concern was that he was struggling with new schoolwork. He noted that he

TABLE 1 General Areas of Speech-Language Pathology Practice for Adults

Topics	Indications for Referral
Speech/voice/ fluency	• Decreased speech intelligibility/difficulty being understood • Changes in vocal quality or inability to produce voice (phonation) • Problems with resonance • Difficulty being heard (loudness) • Complaints of voice too low or too high (pitch) • Need for augmentative/alternative communication options • Stuttering
Language	• Difficulty comprehending spoken or written language • Difficulty expressing intended message through spoken or written language • Difficulty with social communication/pragmatics (ie, turn-taking; topic maintenance)
Cognition	• Difficulty with attention, memory, executive function, or problem-solving
Swallowing	• Complaints of difficulty swallowing • Choking or coughing with swallowing • Difficulty managing secretions • Suspected aspiration or aspiration pneumonia
Other services	• Voice/communication modification in the transgender population • Accent/dialect modification • Vocal hygiene/wellness for professional voice users • Professional/business communication and/or voice use

was a straight-A student prior to his military service. A review of his medical history in his medical chart showed that a previous PCP had treated his associated symptoms of insomnia and headache without improvement. In addition, he had recently been diagnosed with PTSD. As his symptoms had lasted > 90 days, not resolved with initial treatment in primary care, and were causing a significant impact on his activities of daily living, his PCP placed a consult to Speech Pathology for cognitive-linguistic assessment and treatment, if indicated, noting that he may have had a mTBI.[6] Although not intended to be comprehensive, Table 1 describes several clinical areas where a speech pathology referral may be appropriate.

THE ROLE OF THE SPEECH-LANGUAGE PATHOLOGIST

The speech-language pathologist takes an additional history of the patient. This better quantifies specific details of the veteran's functional concerns pertaining to possible difficulty with attention, memory, executive function, visuospatial awareness, etc. Examples might include difficulty with attention/memory, including not remembering what to get at the store, forgetting to take medications, forgetting appointments, and difficulty in school, among many others. Reports of feeling "stupid" also are common. Assessment varies by clinician, but it is not uncommon for the SLP to administer a battery of evaluations to help identify a range of possible impairments. Choosing testing that is sensitive to even mild impairment is important and should be used in combination with subjective complaints. Mild deficits can sometimes be missed in those with average performance, but whose premorbid intelligence was above average. One combination of test batteries sometimes utilized is the Wechsler Test of Adult Reading (WTAR), the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), the Ruff Figural Fluency Test (RFFT), the Controlled Oral Word Association Test (COWAT), and Trails A and B (Table 2).

The initial testing results are discussed with the veteran. If patient concerns and/or testing reveal impairment that is amenable to treatment and the veteran wishes to proceed, subsequent treatment sessions are scheduled. The first treatment session is spent establishing and prioritizing functional goals specific to that individual and their needs (eg, for daily life, work, school). In a case of subacute or older mTBI, as is

TABLE 2 Combined Test Battery Used by Speech Pathologists for Mild Traumatic Brain Injury

Tests	Details
Wechsler Test of Adult Reading	Neuropsychological; for predicting intellectual functioning prior to onset of injury/illness
Repeatable Battery for the Assessment of Neuropsychological Status	Neuropsychological; has 5 primary domains: immediate memory, visuospatial/constructional, language, attention, and delayed memory; alternate form allows for repeat assessment while controlling for content practice effects
Ruff Figural Fluency Test	Nonverbal fluency; provides information regarding executive function, divergent reasoning, and shifting of set
Controlled Oral Word Association Test	Verbal fluency; commonly referred to as FAS; has alternate forms for retesting
Trails A and B	Both collectively test visuomotor speed, scanning, central executive functioning, task-set inhibition, and cognitive flexibility

often seen in veterans coming to the VA, intervention often targets strategies and techniques that can help the individual compensate for current deficits.

Many patients already own a smartphone, so this device often is used functionally as a cognitive prosthetic as early as the first treatment session. In an effort to immediately start addressing important issues like medication management and attending appointments, the veteran is educated to the benefit of entering important information into the calendar and/or reminder apps on their phone and setting associated alarms that would serve as a reminder for what was entered. Patients are often encouraged by the positive impact of these initial strategies and look forward to future treatment sessions to address compensation for their functional deficits.

If a veteran with TBI has numerous needs, it can be beneficial for the care team to discuss the care plan at an interdisciplinary team meeting. It is not uncommon for veterans like the one discussed above to be referred to neurology (persistent headaches and further neurological evaluation); mental health (PTSD treatment and family support/counseling options); occupational therapy (visuospatial needs); and audiology (vestibular concerns). Social work involvement is often extremely beneficial for coordination of care in more complex cases. If patient is having difficulty making healthy eating choices or with meal preparation, a consult to a dietitian may prove invaluable. Concerns related to trouble with medication adherence (beyond memory-related adherence issues that speech pathology would address) or polypharmacy can be directed to a clinical pharmacy specialist, who could prepare a medication chart, review optimal medication timing, and provide education on adverse effects. A veteran's communication with the team can be facilitated through secure messaging (a method of secure emailing) and encouraging use of the My HealtheVet portal. With this modality, patients could review chart notes and results and share them with non-VA health care providers and/or family members as indicated.

A whole health approach also may appeal to some mTBI patients. This approach focuses on the totality of patient needs for healthy living and on patient-centered goal setting. Services provided may differ at various VA medical centers, but the PACT team can connect the veteran to the services of interest.

CONCLUSIONS

A team approach to veterans with mTBI provides a comprehensive way to treat the various problems associated with the condition. Further research into the role of multidisciplinary teams in the management of mTBI was recommended in the 2016 CPG.[6] The unique role that the speech-language pathologist plays as part of this team has been highlighted, as it is important that PCP's be aware of the extent of evaluation and treatment services they offer. Beyond mTBI, speech pathologists evaluate and treat patients with several conditions that are seen regularly in primary care.

Author disclosures

The authors report no actual or potential conflicts of interest with regard to this article.

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