Cognitive-Communication Rehabilitation after Brain Injuries

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ABSTRACT

Speech-language pathologists (SLPs) provide communicative and cognitive rehabilitation for people with brain injuries, and this article describes current assessment and treatment after a brain injury. Cognitive problems can affect attention, concentration, and memory, as well as metacognitive skills to self-monitor, control, and adjust one's thinking. Speech-language pathology (SLP) rehabilitation is initiated in acute inpatient settings and then through a continuum of inpatient rehabilitation, skilled nursing facility, home care, and outpatient settings. Speech-language pathology helps adults with brain injury return to work; sports-related concussion care is provided in school settings. SLPs use assessment tools with normative comparisons to determine severity levels and treatment plans. Patient-centered approaches are used for assessment and treatment plans, to identify specific functional needs that may direct the treatment towards specific functional outcomes.

KEYWORDS: Speech-language pathology; communicative and cognitive rehabilitation; brain injuries

INTRODUCTION

In the United States, there are more than 586 Traumatic Brain Injury (TBI)-related hospitalizations and 190 TBI-related deaths per day, according to the Centers for Disease Control and Prevention (CDC).[1] For those who survive a brain injury, rehabilitation and medical care can range from minimal to intensive levels. Depending on the location and severity of the brain injury, an individual's ability to walk, talk, and care for oneself can vary substantially. Mild to severe TBI can impact a person's abilities related to cognition and communication.[1,2] Speech-language pathology (SLP) has served on the forefront of communicative and cognitive rehabilitation for people with brain injuries.[3] This article describes current SLP treatment to restore cognitive-linguistic skills after a brain injury.

COGNITIVE REHABILITATION

Cognitive problems caused by a brain injury can affect attention, concentration, and memory (especially short-term memory).[3] In addition, an individual's metacognitive abilities and skills can be affected.[4] These cognitive systems are the basis for communication skills with respect to one's ability to comprehend what is spoken as well as the ability to respond with a clear and understandable message. Cognitive-communication impairments are typically assessed and treated by speech-language pathologists (SLPs), who coordinate this aspect of rehabilitation for brain-injured patients.[6] There are several cognitive systems that the speech-language pathologist evaluates and treats, to improve cognition and communication after a brain injury.

Metacognition is described as systems that include the ability to self-monitor, control, and adjust one's thinking through self-awareness and self-regulation. Self-awareness is the ability to know one's own emotions, beliefs, and values, as well as recognize how they are being perceived by others. Self-regulation is the ability to manage one's behaviors and actions in the context of social rules and settings.

CURRENT PRACTICE PATTERNS

SLP services vary depending on the degree and location of the brain injury.[5] SLP rehabilitation is initiated in acute inpatient settings,[4] and it progresses through a continuum of inpatient rehabilitation, skilled nursing facility, home care, and outpatient settings. Speech pathology serves on the forefront of return-to-work programming among adults with brain injury.[6] With the advent of sports-related concussion care, SLP is also provided in school settings.[6,9,12] Based upon the patient's needs and severity level, the speech-language pathologist determines the most appropriate model of assessment and intervention to achieve the best level of outcomes.

ASSESSMENT

Multiple factors are considered in selecting specific tests and protocols to assess the cognitive skills of patients with brain injuries.[3,7] SLPs use assessment tools with normative comparisons to determine severity levels and treatment plans. Standardized testing also supports the basis for SLP services for insurance reimbursement. Criterion-referenced assessments for cognitive skills can provide effective measures that identify severity levels and specific systems of

cognitive impairment. Patient-centered approaches are used for assessment and treatment plans, to identify specific functional needs that may direct the treatment towards specific functional outcomes (e.g., financial management, cooking, return to work).

SLPs are a part of interdisciplinary teams, and they play a leadership role for the assessment and treatment of the patient's cognitive skills.[8] It should be noted, however, that other team members also assess the patient's cognitive skills that impact function. For instance, nurses assess cognitive skills related to remembering medications by name, dosage, and purpose. Physical therapists assess cognition in the context of safety with transfers and ambulation. Occupational therapists evaluate cognitive skills to improve safety and function with bathing, dressing, toileting, etc. SLPs collaborate with all disciplines to facilitate continuity of services and a consistent understanding of the patient's function and cognitive impairment. SLP assessment is based on the patient's level of severity as well as needs. Current models of assessment range from standardized testing to interviews and observations.[9]

SERVICE DELIVERY PATTERNS

Currently, speech-language pathologists utilize a combination of restorative and compensatory treatments.[3] Restorative intervention is based on the premise of returning to baseline function, whereas compensatory treatment focuses on implementing alternate strategies or environmental aids. SLPs may also utilize a mixed-method approach to cognitive-communication treatment for patients with brain injuries. This approach provides the patient with strategies and tools to return to function during the early stages of rehabilitation while also addressing restorative intervention – with the goal of full recovery.[10] SLPs provide treatment based on the patient's needs, severity level, and pre-morbid status (family support, living arrangements, and work or school roles). Treatment models involve collaboration with the interdisciplinary team, including physiatrists, neurologists, neuropsychiatrists, physical and occupational therapists, and nurses. To determine the best treatments, the SLP seeks ongoing feedback and input from the patient, interdisciplinary team, and family. Taking all these factors into consideration, the SLP offers a variety of strategies and tools.

Current service delivery models range from cognitive exercises to family counseling to environmental aids. Spaced retrieval is an evidence-based technique used to build memory skills. [9,11] After introducing information that is recalled within a short timeframe (e.g., 10 seconds), the SLP asks the patient to recall the information in progressively longer timeframes. This technique for building memory skills has been proven to be effective among patients with brain injury as well as other brain impairments (e.g., dementia, aphasia). Cognitive rehabilitation is also delivered through immediate- and short-term memory exercises during face-to-face treatment and computerized programming.[13] The latter approach offers patients the ability to practice independently, which may lead to a faster recovery.[13]

SLPs include the family members in all components of the patient's recovery process.[12] Family members can provide insight into the patient's pre-morbid condition. The family can serve to substantiate or clarify the patient's functional-cognitive status within the home setting. The speech pathologist provides ongoing family education to facilitate continuity of cognitive therapy provided in the clinical setting. Family education will lead to a better understanding of the condition and therapeutic lifestyle changes. Family counseling also addresses the support required to facilitate the patient's progress and independence.

Compensatory strategies are useful in all stages of a patient's recovery process.[6,15] For instance, journal writing is used to improve short-term memory, episodic memory, and semantic memory skills. Placing schedule boards in the patient's living space can improve the ability to recall daily events. Checklists, alarms, and calendars are additional tools that lead towards independence and cognitive-communication recovery.

Byom and others identify social skills as viable goals that facilitate successful recovery for the adult brain-injured patient, for social interactions and return to work.[11,16] Social skills are commonly affected as a result of brain injury. Therefore, SLPs focus on social-pragmatic skills that are linked to social communication, social adjustment, and social cognition abilities. The importance of social-pragmatic skills is based on the premise of the utilization of functional use of language abilities that ultimately promotes communication.

The SLP's role in brain injury rehabilitation includes assessment and treatment across a continuum of clinical settings, as well as within schools for sports-related concussion care.[14] Speech-language pathologists can utilize formal as well as informal assessments that lead towards effective treatment. A variety of service delivery models are available and are based on the patient's needs. Computerized cognitive programs can provide fast recovery due to the increased opportunity for practice.[13] Family integration is an important component of cognitive-communication rehabilitation. The field of SLP continues to strive to support and improve the quality of life for people with brain injuries

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Disclosures

None

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