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Research Article

Traumatic brain injuries. Standardized or non-standardized assessment procedures?

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Abstract

Introduction: Evaluation methods may include standard and non-standard procedures. The decision to use standardized or non-standardized assessment procedures is based on a variety of factors, including the needs of the persons with traumatic brain injuries (TBI), the complexity of the injury, socioeconomic factors, and the services and rehabilitation center offered.

Aim: This study was a descriptive review about the evaluation after traumatic brain injuries (TBI).

Methodology: Literature review was carried out in the web which referred to Evaluation after traumatic brain injuries.

Results: Review of the literature highlighted key points of evaluation

Conclusions: Standard assessment methods are used to identify areas of weakness to be addressed in treatment or areas of strength that can be used to compensate for ongoing weaknesses. When appropriate, a whole range of evaluation methods is administered. In other cases, the therapist may select a number of sub-standard methods, recognizing the effects on psychometric properties when using these tests. When standard methods are not administered according to the corresponding protocol (standard), then the results must be interpreted and reported with extreme care.

Key words: evaluation; traumatic brain injuries

Evaluation studies

An overall assessment addresses various parameters as defined in the International Classification of Functioning, Disability and Health (ICF) [1], including body structures / functions, activities / participation, and personal / environmental factors, and is sensitive to cultural and linguistic diversity.

Patient evaluation is performed by a variety of professionals who make up the interdisciplinary care team (speech therapists, ENT, physiotherapists and psychiatrists, etc.) and using a variety of available evaluation methods (or a combination of them) to identify potential deficit areas and TBI.Although professionals responsible for evaluating patients for speech, hearing, language, cognitive-communication deficits, and swallowing are not involved in diagnosing the severity of TBI, they need a clear understanding of the individual's medical evaluation. , the physical condition, the course of recovery, as well as the nature and effects of the neurological lesion, so that they can participate in shaping the development of an appropriate assessment plan. [9].

Evaluation typically results in:

- Clarification of the levels of disorder in speech, language, voice, cognitive-communicative ability and / or swallowing.
- The clinical description of the characteristics and severity of the disorder [2]
- Prognosis for change (in the individual or relative context of the patient)
- Intervention recommendations for optimal patient support.
- Recognition of the effectiveness of the intervention and rehabilitation and support programs.
- Referral for further evaluations, assessments or provision of rehabilitation services [2].

Practical evaluation

Initial phase

The overall assessment is typically completed before more comprehensive assessments are conducted by experts in each individual deficit area [9]. The first screening and general evaluation do not provide a detailed description of the severity and characteristics of the deficits that occur after TBI, but recognize the need for further evaluation.

The evaluation may lead to recommendations for re-evaluation and complete evaluation, or to referral for other examinations from specialties not included in the original interdisciplinay team [9]. Assessing patients for speech, language, cognitive-communication, and swallowing deficits is achieved using appropriate standardized or non-standardized procedures. Assessment is performed in the language used by the person, with sensitivity to cultural and linguistic variables. The results of the control procedures are interpreted in the context of the individualized sensory deficits presented by the patient [9]. Assessment of auditory abilities requires the patient's ear examination to determine if any affected auditory cells are the result of TBI prior to examination for other deficits. If the person is wearing hearing aids, the hearing aids should be inspected by an otolaryngologist to ensure that they are in good working order and worn by the person during the assessment [9]. If the person does not show satisfactory results during the screening hearing test or if hearing loss is suspected due to pathophysiological causes, a referral for a complete audiological evaluation is necessary. The assessment of auditory abilities falls within the scope of the practice of assessing patients for speech, language, cognitive-communication, and swallowing deficits [9].

Evaluation parameters specific to TBI include the following:

Interdisciplinary cooperation that you deem necessary to ensure that the person with TBI does not undergo unnecessary therapeutic methods and techniques or is exposed to the consequences of these practices but also to ensure the restoration of the maximum possible range and depth of the assessed skills [7].

Diagnosis of any existing depression (which may be a consequence of neurological damage or a symptom of post-traumatic stress). Depression may negatively affect the performance of the assessment. If the signs and symptoms of depression are obvious or suspected, refer the person to a neuropsychologist, clinical psychologist or psychiatrist for further follow-up [10].

Identify and record side effects of prescription drugs that may affect the presentation and evaluation of a person's performance (eg, excessive drowsiness). Multipharmacy, or the concomitant use of multiple drugs, is common among people with multiple medical conditions, and some drugs cause the patient's cognitive problems to worsen [7].

The effects of recurring CKDs (as they are on the individual's medical history and / or medical record) should be taken into account when determining the individual's previous level of functioning and should be defined as the initial skill levels. Recurrent TBI can lead to chronic traumatic encephalopathy, which affects a person's overall cognitive and behavioral function and increases the risk of dementia [8].

Average phase

People with suspected communication-cognitive deficits or with limited swallowing skills are referred for a more thorough assessment of speech, language, cognitive-communication, and swallowing deficits. The evaluation can be completed in the clinical environment or in the home environment (living environment) of the individual. The assessment is completed in the language (s) used by the person with TBI (or before) using translation / interpretation services, if required [6]. Evaluation of individuals with TBI is performed to identify and describe:

• The underlying strengths and weaknesses in language processing (spoken and written language with different ways of responding) and speech production (including articulation, voice and speech fluency) that affect communication performance and participation in activities of daily living [11].

• The underlying skills and weaknesses associated with cognitive processing, including social skills that affect the performance of communication and the ability to return to the previous level of operation in activities of daily living.

• The presence of dysphagia and which phase (s) of ingestion may be impaired, appropriate means of dietary intake, including safe oral dietary options, and appropriate compensatory strategies that maximize safe ingestion [11].

• Related factors that act as barriers or facilitate successful communication and participation in everyday life.

• The impact of impairments on speech, language, cognitive-communication and swallowing, on quality of life and limitations on functioning and participation in relation to pre-existing social roles and opportunities for the individual and the impact on his / her community / of [11]. The evaluation usually includes the following:

• Obtain relevant case history, including medical / physical condition, education, occupation, and socioeconomic, cultural and linguistic backgrounds. Due to the complexity of the cognitive consequences of TBI, recording a detailed history of injury and gathering as much information as possible from the family is particularly beneficial for locating predisposed language proficiency [6].

• Review of the patient's auditory, visual, motor, cognitive and emotional abilities. People with suspected visual problems as well as hearing and balance problems are initially referred to the relevant specialties for a comprehensive examination before any assessment. Appropriate support aids (glasses, hearing aids, etc.) are used if necessary before implementing any other rehabilitation program.

• Evaluate the integrity of speech subsystems (eg, respiration, voice), oral motor mechanisms, and speech motor function and their effects on communication and swallowing.

• Standard and non-standard methods, selected with emphasis on ecological validity (including the analysis of physical communication samples collected in different ways (listening, speaking, reading or writing) and depending on different contexts (social, educational and professional).Appropriate programs and protocols can be created through the testing process to include all cultural and linguistic variants at the same time. The evaluation of speech, language, and cognitive-communication includes and is based to a high degree on the influence of cultural and linguistic factors on the style of communication of the individual and the diagnosis of possible failure of these functions to evaluate the influence of TBI during screening [5].

Capturing and recording the parameters that cause concern and in which some damage is located (memory, speech, swallowing), the influence of these disorders and on secondary parameters (eg, social interactions, work activities), lead to the identification

relevant monitoring services for appropriate intervention and support for people with TBI.

Final phase

Periodic, continuous evaluation of people with TBI is important because neurological recovery can be a long and slow process after certain types of severe brain injury. Ongoing evaluation can also be used to examine a patient's response to recovery and quality of life after injury.

Evaluation instructions (Evaluation Methods / Procedures)

Evaluation methods may include standard and non-standard procedures. The decision to use standardized or non-standardized assessment procedures is based on a variety of factors, including the needs of the person with TBI, the complexity of the injury, socioeconomic factors, and the services and rehabilitation center offered.

Standard evaluation methods

Standard assessment methods are used to identify areas of weakness to be addressed in treatment or areas of strength that can be used to compensate for ongoing weaknesses. When appropriate, a whole range of evaluation methods is administered. In other cases, the therapist may select a number of sub-standard methods, recognizing the effects on psychometric properties when using these tests. When standard methods are not administered according to the corresponding protocol (standard), then the results must be interpreted and reported with extreme care [9].

There is currently a fairly limited variety of standardized communication evaluations for use in patients with TBI. When choosing a standard assessment tool, clinicians take into account the severity level of the underlying neurological impairment and the level of alertness of the individual, as well as any existing comorbidity as well as physical, sensory and cognitive deficits.

Some assessment methods are not suitable for patients who present with great medical complexity and will not provide useful information about the individual's condition after TBI. In addition to selecting tests that assess the target deficit areas, the treating physician should evaluate whether the tests selected are appropriate for use in patients with TBI [9].

Non-standardized evaluation methods

Non-standardized procedures are assessment methods used to systematically examine aspects of speech, language, and cognitive function. Functional non-standard assessment is especially valuable in people with TBI, who often perform disproportionately successful activities of daily living compared to the possibilities provided by standardized test scores. Non-standardized evaluation procedures serve a variety of purposes:

• Skills in areas for which standardized tests do not exist or are limited [3].

• The available support systems and appropriate training to be provided to the communication partners,

• Requirements and capabilities within functional frameworks and activities of the patient's daily life [3].

• The strategies and any necessary modifications that can maximize the functional abilities of the individual

• Variables that can positively affect job performance and learning in the context of current life / work environment [3].

Non-standard procedures also provide the ability to monitor and record results as well as the patient's response to selected and performed interventions. In these methods, performance scales, questionnaires for both the patient and the family, as well as the assessment of skills and weaknesses can also be used to determine the functional needs of each individual and the course of treatment.

Conclusion

A person who has had TBI, as mentioned above, can have a variety of symptoms, the presence of which can cause serious problems in assessment.

The following factors may affect the assessment of cognitive communication skills in people with TBI:

• The level of consciousness and alertness

• Neuro-behavioral deficits, such as arousal and militancy

• Motor deficits (eg, orthostatic limitations, hemiparesis, limb inactivity.) That have

An impact on the individual's physical endurance and participation in activities

• Aesthetic deficits (eg, visual neglect, hearing loss) [7].

Factors that may affect the assessment of neurogenic dysphagia after TBI include:

• Extent / severity of multiple injuries

• Problems in a small area of the esophagus or motor muscle control that may affect self-feeding

• Physical damage to the gastro-oesophageal structures (ie mouth, pharynx, and / or larynx)

• Presence of neuromotor disorders

• Related neuro-behavioral disorders (eg, obsession, poor start, impulsivity, decreased deficit consciousness)

• Respiratory condition, including the presence of tracheostomy and / or the use of mechanical ventilation. [7]

The patient's level of arousal, cognitive status, and ability to follow instructions are assessed throughout the ongoing evaluation. Depending on the individual's overall readiness and ability to participate and perform the required actions, the clinical examination may also include a series of feeding tests involving a variety of food textures and fluid cohesion.

While traditional hearing behavior tests (e.g., clear sound and speech audiometry) are generally appropriate for the audiological evaluation of individuals with TBI, modifications to test procedures may be necessary [4]. These modifications may include simplification of instructions, use of pulsed tones, slowing down the presentation of speech stimuli, repetition of questions to elicit answers, use of monosyllabic answers. The results of an acoustic test can be confused with comorbidities, including memory problems, attention deficit, tinnitus, dizziness and anxiety, making it difficult to identify the actual hearing disorders and deficiencies [4]. If the otolaryngologist is unable to obtain accurate results from the patient evaluation, more specialized diagnostic tests may be needed to assess the degree of hearing loss at the time (eg normal / mild hearing loss or a more significant hearing loss) [4]. Examples of more objective tests include audiovisual tests or brain stimulation tests. Even if the results are within the normal range, a referral for a series of tests may justified for the assessment and treatment of hearing deficits [4].

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