



Traumatic Brain Injury and Rehabilitation: Current Neuropsychological Overview

Abdullah MQ*

Clinical Psychology and Mental Health, University of Aleppo, Syrian Arab Republic

*Corresponding author: Mohammad Qassem Abdullah, Prof. Dr. Clinical Psychology and Mental Health, University of Aleppo, Syrian Arab Republic, Email: mohammadabdullah@alepuniv.edu.sy

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Abstract

The aim of this study is to explore the current issues in traumatic brain injury and rehabilitation. It has been focused on the essence of rehabilitation of the patients following the trauma and the role of neuropsychological assessment strategies. The multidisciplinary trend plays significant role for good understanding and handling this disability.

Keywords: Traumatic Brian Injury; Rehabilitation; Neuropsychological Assessment

Introduction

In the past, most people who sustained catastrophic brain injury died. However, over the past decades, sophisticated medical and neuropsychological diagnostic techniques such as Computerized Tomography (CT) Magnetic Reasoning Imaging (MRI) [1] and Neuropsychological Assessment Strategies (NPAS), along with advances in emergency trauma procedures and behavioral neurology have dramatically increased the survival rates for people who have survived such trauma. At the same time, because of population growth, the number of victims of brain trauma primarily automobile accident has also risen [2].

Traumatic brain injuries (head injuries) are becoming increasingly common, and their impact on people's lives can be devastating [3]. Depending on which part of the brain is injured and to what extent, impairments could be in physical functions such as walking, and use of hands and legs, or in mental functions (also known as 'cognitive functions') [4].

The result of these injuries, many people has developed severe disabilities that affect their lifestyles, personality and behaviors and the people around them in social context [5].

Problems with mental functions can be related to memory, understanding language, using appropriate words to express oneself, analyzing options in a situation and making appropriate decisions [6]. Problems with mental

functions could lead to difficulty in 'occupational activities', a term that refers to employment, pursuing education and managing daily routines. Limitations in these activities could lead to a poor quality of life and withdrawal from social life [7].

For those who survive and for their families, mere survival is not enough, so attention must be paid to quality of their lives after traumatic event. During the past decades increasing advances have been developed in treatment techniques for brain injuries. The neuropsychological assessment and rehabilitation, directed toward the victims and their families.

What Do TBI Really Mean?

Traumatic brain injury (TBI) occurs when a sudden injury causes damage to the brain. A "closed head injury" may cause brain damage if something hits head hard but doesn't break through skull. A "penetrating head injury" is brain damage that occurs when an object breaks through skull and enters the brain [8].

Symptoms that may occur after TBI may include headaches, dizziness, confusion, convulsions, loss of coordination, slurred speech, poor concentration, memory problems, and personality changes [9]. For people younger than 75, half of all TBIs are caused by traffic accidents. For people older than 75, the most common cause is falling. Other common causes include violent assaults, firearms, and

sports injuries. TBI is falls, particularly for young children and adults over 65. Other common causes of TBI include accidental blunt force trauma, motor vehicle accidents, and violent assaults.

What Do Rehabilitation Really Mean?

To understand this term, we need to look how recovery after brain injury occurs. This is often expressed as a “recovery curve” which varies from patient to patient, [10]. On the other hand, the age of which the person was injured and the severity of the injury appear to the most important factors that after recovery. Reasons for rehabilitation are [11]:

- Improving the ability to function at home and in community
- Treating the mental and physical problems caused by TBI
- Providing social and emotional support
- Helping victims adapt to changes as they occur during recovery.

The factors influence recovery [12]:

- 1- The time that has elapsed since the injury.
- 2- The environment from which the TBI survivor has come, and to which he/she has returned.
- 3- How the lesion was acquired (serial or interactional).
- 4- The patient’s psychological characteristics before the injury.

5- The effects of the drugs or alcohol.

Cope and Hall since (1982) [13] have shown that the relationship between time since injury and aggressiveness of rehabilitation interrelate with outcome. Because neuropsychological, functional behavioral and research data must be used to direct treatment programs, a major issue is how to integrate the data from all available sources.

Questions that are Very Significant for Assessing Patient

- Does the professional understand and treat the patient’s deficit in memory, reaction time, attention and concentration, abstract reasoning or activity daily living (e.g. problem of morning care, making breakfast, work, evening activities).
- In the final assessment, how do we provide rehabilitation and treatment programs?

Assessment Aggressive Behavior following BTI

The common method of collecting behavioral assessment data is direct observation and assessment of the BTI survivor’s behaviors in the treatment setting. The first step is to specify the behaviors that will be observed and measured [14]. The target behaviors must be described in clear so that there is agreement among the psychologists regarding the behavior interest. The suspect of the maladaptive behaviors is presented in the following table:

Code Number	Behavior
1	Verbally abuses others.
2	Verbally threatens to harm property.
3	Verbally threatens to harm people.
4	Physically threatens to harm property.
5	Physically threatens to harm people.
6	Violates other’s personal life space when agitated but does not specifically threaten harm or make contact with others.
7	Physically strike, hits, kicks or bits others.
8	Destroys harm to another’s property.
9	Destroys harm to his/her own property.
10	Takes another’s personal property without authorization.
11	Makes suicidal/self-destructive gestures.
12	Attempt suicide.
13	Engages in hyper agitated behavior including rapid pacing and excessive movement or other psychomotor activity.
14	Engages in explosive verbal and physical outburst.
15	Engages in argumentative/oppositional behaviors when asked to perform a behavior.
16	Engages in screaming, shouting behavior unrelated to explosive outbursts.

17	Makes sexually offensive remarks.
18	Makes sexually offensive gestures.
19	Touches others in sexually offensive and aggressive ways.
20	Engages in other form disruptive, attention-seeking behaviors.

Table 1: suspect of the maladaptive behaviors. (William, and John, 1989) [15].

Conclusion

Outcomes of the researches: As of the findings of the researches, brain injury professionals are currently adapting concepts from the fields of general rehabilitation, including retraining and remediation of various skills, acceptance of disability, theories of recovery and prevention of morbidity and are creating techniques specifically designed for brain-injury survivors. These techniques include: 1-specialized individual treatment, 2- adapted group therapy, 3- cognitive rehabilitation, 4- neuropsychological assessment, 5- day treatment, 6- inpatient treatment, 7- family intervention and family counseling, 8- behavioral therapy, 9-neuropsychiatric interventions, 10- and finally and most important multidisciplinary rehabilitations.

We conclude, that the current significant topic for researching BTI are: pathophysiological basis for neuropsychological dysfunction, Behavioral neurology of brain injury, psychopharmacological agents in BTI, rehabilitation programs, neuropsychological investigation and assessment, interventions in the inpatient setting, neuropsychtherapy and group treatment for brain injury survivors, long term family therapy/counseling and management of aggressive behavior following BTI.

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