

Treatment of memory in traumatic brain injury



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A Traumatic Brain Injury (TBI) is an injury that caused damage to the brain. In America, an approximate of 1.7 millions of people suffer a TBI annually, from which 275,000 result in hospitalizations and 52,000 in deaths (Anabesaw, Wilson, Picklsimer, Voronca, Williams & Edwards, 2013). There is not such a thing as two individuals with the same TBI, because each brain injury is different. TBI are classified in two different types of injuries, penetrating brain injuries and non-penetrating brain injuries. The penetrating brain injuries are characterized when an object enters and penetrates the skull and causes damage in the brain. A penetrating brain injury not matter the size is dangerous and can be life threatening. Some examples of penetrating brain injuries can be a gunshot, a stab wound, an artillery shell fragments among others. Adults that survive this type of injury most of the time they will struggle with physical, cognitive and linguistic disabilities (Brookshire, 2015). On the other side the, the non-penetrating brain injury is when the brain receives damage or trauma, but there is not a penetration of an object to the brain. Some examples of non-penetrating injuries are falls, car accidents, concussions among others. The non-penetrating brain injuries are classified in two categories. The first type is the non-acceleration injuries or fixed-head trauma. Non-acceleration injuries are less severe and are does that deform the shape of the skull at the impact location. They occur when a restrained head is struck by an object in movement. The second type is called the acceleration injuries or moving head trauma (Brookshire, 2015). As oppose of the non-acceleration injuries, this one occurs when the moving head hits an object in movement or when the unrestrained head hits a stationary movement (Brookshire, 2015). These acceleration injuries are serious because of the vibration in the skull caused by the object. TBI can

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happen to everyone, but there is a population at higher risk than others. Infants, toddlers, student's athletes, active members of the military service, young adults before 25 years old, older adults of 65 years and older are at high risk of acquired a TBI. Young males are more likely to have TBI as opposed to females. Another population at high risk for TBI is the drug and alcohol users. (Brookshire, 2015) mentions that about half of the (40%-60%) o people admitted to the hospitals with TBI have been intoxicated either with drugs or alcohol.

The etiologies or causes for a TBI are diverse. Some of the most common causes for TBI are motor vehicle accidents, sport injuries, falls, violent assaults, work related injuries, military combat, wound gunshot among others. A TBI damage can range from a mild to a severe brain injury. A person with a mild brain injury might need medication and rest whereas a severe brain injury might require surgical intervention and a multidisciplinary rehabilitation process. The brain is the command center of the human nervous system. If a part of the brain suffers damage there will be changes in the way, we act and perceive things around us. Some of these changes can be in our behavior, work/ academic performance, personality, relationships, social interactions, physical activities and others.

A TBI survivor will encounter a variety of behavioral changes and disabilities after the injury. These changes will depend upon the location of the brain damage and the severity of the injury in the brain. People with TBI will experience different symptoms.

The following are general behavioral characteristics that a patient with a TBI can experience; irritability, frustration, depression, anxiety, hallucinations, sleep disorders, delusions, aggressiveness, euphoria, confusion, disorientation, memory difficulty, lack of attention, dizziness, nausea, headache and mania. A person with a TBI does not necessarily have to have all of the above behavioral characteristics. Another set of changes or symptoms a patient can experience after a TBI are in the area of speech and language. Language and Communication problems in people with a TBI are associated or attribute to cognitive process (Brookshire, 2015). These cognitive process are related to the person's ability to make reasoning, judgment, problem solving, memory, attention, abstract thinking and others. As a result of the TBI, the changes in a person cognitive skills can result in speech and language impairments. Some of these impairments will affect the patient abilities in the area of language comprehension, written and spoken language. People with TBI also will struggle with topic maintenance in verbal and written form. In addition, they will have difficulties with expressive language, coherence, social interactions, turn-taking and lack of important details in conversations. People with TBI can also have memory problems that can affect directly to their language abilities. They will fail to identify the non-verbal cues of language during a conversation. Another of these effects are excessive repetitions, difficulty to maintain a topic, accept others people perspective, social inappropriateness and improper content during conversation. Individuals after suffering a TBI will encounter several consequences as a result of the brain damage. These consequences are classified as primary and secondary consequences. The primary consequence is the physical damage to the brain. The secondary

consequences are cerebral edema, hypoxia, hematomas, hemorrhages and seizures. These consequences are more serious and destructive than the primary consequences.

Treatment and rehabilitation are an essential part of the recovery process of a person with a TBI. This recovery process will try to help them returning to their lives and their responsibilities previous the TBI. Treatment and rehabilitation vary depending the case and the degree of severity. The multidisciplinary treatment and rehabilitation team has an objective of independence. They want to help people with TBI reach a realistic level of independence, in their daily living as save as possible. One of the areas that a patient with TBI needs treatment is with their memory. The memory is divided in short term memory or working memory and the long term memory that is also called permanent memory. Because the memory is necessary to encode, store and retrieve language it is also one of the aspects that Speech and Language Pathologists (SLP's) works on. The following are some Evidence Based Practice (EBP) treatment options, or compensatory strategies that SLP's use to treat people with TBI. These treatment objective is to improve memory issues which also can affects language skills.

Technology has been a fundamental tool in the treatment and intervention methods of many SLP's. Tele-therapy is a compensatory strategy that clinicians use to help people with TB and their memory skills. Tele-therapy is a combination of spaced retrieval (SR) and an error less training. People after a TBI have many difficulties encoding and retrieving new information from their brain (Melton & Bourgeois, 2010). Research has demonstrated that SR has benefit people with memory problems. In the past SR has been used by <https://assignbuster.com/treatment-of-memory-in-traumatic-brain-injury/>

therapist to teach patients new information, object location associations, new motor skills, calendar use and recall a planned activity (Melton & Bourgeois, 2010). Before initiate tele-therapy the clinician asks the patient for three goals they want to work in therapy. Caregivers are also encouraging to participate and discuss any concerns or future goals with the clinician. After setting the goals, the treatment will consist on a daily telephone session for 30 minutes. The clinician will call the patient and start working towards goal number one. During the session the clinician can verbally prompt the patient, but if the response is delayed or incorrect SR training for goal number one will continue. The goal and the correct answer has been develop using the patients needs and vocabulary to facilitate the response. For example, the clinician can say " I know that you most of the time you misplace your glasses. To avoid this to happen you have to save them always in the same place. When you finish reading the newspaper put your glasses in the nightstand Melton & Bourgeois, 2010). This will help you remember where to find your glasses. The clinician will accept the answer as correct only if its exact and immediate. After the clinician gives feedback to the patient, they will engage in a conversation to deviate from the goals. Later, the patient will be asked the same question to confirm the information is being retain. One of the benefits from this type to therapy is the attendance rate. Patient does not have to worried about transportation issues. However, one drawback about this therapy is the lack of socialization. Computer-Based Cognitive rehabilitation with tele-therapy is another treatment possibility for people with TBI. This intervention system starts with a face to face meeting of the SLP and the patient. In this session the clinician

introduces the software package, the configuration of the software and the system to the patient. The computer system is conveniently installed for the patient at their home. This installation also will include a basic training how to manage and access the therapy material. The SLP will explain the process how tele-therapy works. After installation is completed, the system is ready for the patient usage. The clinician includes in the treatment, long term and short term goals. The therapist daily monitors the patient progress and make the necessary adjustments if necessary. The SLP can upload new material for the patient's access. This system helps the patient with attention, executive functions, complex visuospatial memory, complex problem solving and decision making skills (Melton & Bourgeois, 2010). Computer-based intervention is drill oriented, practicing repetition of letters, words, numbers, pictures among others. The patient should access to the system at least once a day, but access is unlimited. The duration of this computer-based system, is until patient achieve their goal with an 80% of accuracy or the progress is not sufficient which will be determined by the SLP. The benefits from this type of intervention is the patients home convenience, time flexibility and frequency of access. Another potential benefit, is the no need transportation and the lower cost for the services. However, the computer-based system will not be beneficial for people with TBI which also have motor or visual impairments. Isolation is another negative aspect to consider with this computer- based system.

In addition to the above treatment options, people with TBI can benefit from mnemonic devices. Mnemonic devices can be verbal and they help patient with memory impairments remember things. In this strategy the clinician

helps the patient to associate information that needs to be remember, with something they are already familiar with such as words, picture, people or places to retrieve information. This information will be organized in a simple word or phrase to be remembered by the patient. This can be also using rhyming, songs, acrostics or acronyms to facilitate recall. Clinicians also, encourage patients to create a mental image of the information for better results.

Other intervention technique that SLP's use with their patients that have issues with memory are hand written notes, calendars, diaries, environmental modifications, checklist among others. In addition to electronic organizers such as voice recorded, smart phone, google calendar and alarm watch.

Research and clinicians recognized that the combination of memory drills and continuous practice with encoding, retaining and recalling information helps the memory of people with TBI (Brookshire, 2015). There are a variety of treatment options for people with a TBI that struggles with memory. The treatment will vary depending age, severity and resources. The clinician has to consider the patient's abilities and interest at the time of selecting a treatment option. Another aspect that SLP has to consider are the cost and the complexity. Technology devices can be versatile and flexible, but also can be complex and expensive. All above treatment options have been proved by research to be effective for people with TBI and memory problems. Not all treatment options will be suitable for every TBI case. The SLP will study each particular case and will offer the treatment options for each case. The effectiveness of treatment will also depend on the

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commitment of the patient, caregivers and the clinician. The fusion of SLP's and the treatment options can bring hope and rehabilitation to people with TBI and memory issues.

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