

Pediatric Traumatic Brain Injury (TBI)

Introduction:

Acquired brain injury (ABI) is a major cause of mortality and disability worldwide, and is associated with a three-fold increase in functional disability (National Paediatric Trauma Registry, 1993). The most common type is a traumatic brain injury (TBI), often referred to as a closed head injury. The brain can move forward, backward and side-to-side within the skull, causing primary injury including skull fractures, tears in brain tissue, bruising or microscopic hemorrhages, and tearing and stretching of axons within white matter. However, it is the secondary effects (e.g.: hypoxia, swelling, seizures, elevated intracranial pressure, neurochemical processes) and their management, that are essential post-trauma¹.

Symptoms of paediatric TBI:

In the weeks post-mild TBI, a number of physical symptoms may occur, including headache, dizziness, nausea, drowsiness and fatigue. While these usually resolve by 3-6 months, there is a group who continue to experience such symptoms, and go on to develop psychological problems including anxiety, irritability and depression²⁻³. As well as symptoms experienced following a mild TBI, more severe injury may also be characterised by a period of loss of consciousness (LOC), post-traumatic amnesia (PTA), neurological signs and evidence of brain injury on imaging.

Outcome and recovery from TBI

Outcome from mild head injury is not well defined. Some argue that mild TBI is associated with either no detectable sequelae or full recovery while others report significant, ongoing problems⁴⁻⁵. With regard to more severe injuries, deficits have been reported at one time point, or longitudinally, in areas including attentional capacity, memory and learning, language, organisation and planning, social competence, and educational ability⁶⁻⁸.

Variables affecting outcome and recovery

Greater injury severity has been identified as a reliable predictor of impairment in physical, cognitive and educational domains, with environmental factors linked to behavioural outcome. Furthermore, a combination of social disadvantage and severe injury have been found to be detrimental to recovery⁹. Other factors implicated in predicting outcome include premorbid factors and younger age, or developmental level, at time of injury¹⁰⁻¹¹.

Conclusions:

It is clear that difficulties and deficits are evident and persist following childhood TBI. However, professionals report only small numbers of injured children having access to rehabilitation resources. There is a need for research in the intervention area, in order to develop and adapt interventions to be suitable for this population. Such intervention programs will prevent or reduce impairments following paediatric brain injury and so will help these children and their families to achieve a better quality of life.

References:

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