

Disorder: Traumatic Brain Injury (TBI)
Essay Title: Paediatric Traumatic Brain Injury (TBI)
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Date: 19/06/2013

Introduction:

Traumatic brain injury (TBI) is a major cause of mortality, cognitive and functional disability world-wide (National Paediatric Trauma Registry, 1993). Forward, backward and side-to-side movement within the skull may cause primary damage 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, moderate-severe injury is often 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 paediatric TBI:

Outcome from mild TBI 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 longitudinally in areas including attentional capacity, memory, working memory, learning, language, organisation and planning. These deficits in turn influence educational ability, social competence, re-integration into society and quality of life⁶⁻⁸.

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 recovery.⁹ Other factors implicated in predicting outcome include premorbid factors and younger age, or developmental level, at time of injury¹⁰⁻¹¹.

Treatment for deficits in cognitive outcome post-brain injury:

A gap currently exists in the availability of evidence-based research that guides the development and/or implementation of intervention programs to assist children after brain injury¹². The development of such programs is essential in order to fill this treatment gap and so be able to prevent and/or reduce cognitive and functional impairments following brain injury.

Conclusions:

It is clear that difficulties and deficits are evident and persist following childhood TBI, with research from our team indicating deficits continue into young adulthood¹³⁻¹⁵. There is a need for evidence-based research in the intervention area, so that intervention programs may be developed or adapted for use with this population. It is essential that feasibility and efficacy are established, and that such intervention programs are then implemented into standard clinical care.

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