Abstract

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This thesis focuses on the long-term cognitive outcome and health-related quality of life (HRQoL) of children and young adults who suffered traumatic brain injury (TBI) in childhood and the developmental outcome in children with sagittal craniosynostosis who underwent corrective craniofacial surgery.

The study of the TBI group is a population-based longitudinal study of 165 survivors ten years after traumatic brain injury. They had all suffered serious TBI defined as a period of unconsciousness of one hour or longer or neurophysiological, neuroradiological or neurological signs of brain contusion and/or brain haemorrhage. Study I describes the health-related quality of life (HRQoL) and comprises 109 individuals. Study II reports on the cognitive outcome for 53 individuals, comparing them with healthy controls, and also comparing the severely injured individuals with the moderately injured ones. Study III describes the cognitive development measured on three different occasions for nine individuals. Study IV addresses the issue of the cognitive development in children with sagittal craniosynostosis who underwent craniofacial surgery.

From the results, it can be concluded that TBI in childhood has life-long consequences. The patients exhibit significantly lower HRQoL compared with controls. The comparison with other chronic congenital and acquired diseases of childhood reveals that the HRQoL profile appears to be clearly related to the type of disease.

The TBI group produced a significantly poorer performance in tests of intellectual capacity, with considerably lower results in the verbal domain. The most impaired domain was verbal learning and memory. They also displayed impairments in executive function, especially in the areas of attention, working memory and mental flexibility. This was also the case for the subjects who underwent three consecutive assessments. The results for those individuals especially point to a declining trend for verbal IQ. When comparing the severely injured group with the moderately injured group, the severely injured group exhibited substantial recovery. There were no statistically significant differences between the two groups when it came to verbal IQ, verbal processing speed and verbal learning and memory. However, the results for performance IQ revealed significantly poorer values for the severely injured group.

All children with sagittal craniosynostosis exhibited a general development quotient that fell within the normal range. No statistical differences between pre- and postoperative scores were found. Corrective craniofacial surgery appears to be a safe and reliable procedure.

Prospective longitudinal studies that follow children with brain injury over a longer period of time are necessary to help us go beyond the study of characteristics of group differences in terms of outcome and instead lead us towards a better understanding of the process of individual adaptation and recovery.

Key words: children, traumatic brain injury, sagittal craniosynostosis, cognitive outcome, health-related quality of life