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Age at Injury and Postinjury Outcomes 7 to 8 Years After Severe Traumatic Brain Injury in Children/Adolescents and Adults: Findings From the Traumatisme Grave de l'Enfant (TGE) and the Paris-TBI Cohort Studies

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Introduction

The present study sought to determine the effect of age at injury on the overall disability levels observed in a sample of children/adolescents and adults followed longitudinally 7 to 8 years after severe traumatic brain injury (STBI).

Methods

We used data from 2 prospective longitudinal cohorts aimed at assessing overall outcome in children/adolescents 7 years following STBI (Traumatisme Grave de l'Enfant [TGE] cohort) and in adults 8 years postinjury (Paris-TBI cohort). The follow-up included 39 children/adolescents (TGE cohort, mean age at injury = 7.5 years, SD = 4.6; range, 0.3-14.7) and 86 adults (Paris-TBI cohort, mean age at injury = 33.7 years, SD = 13.8; range, 14.6-74.3) who sustained STBI (Glasgow Coma Scale [GCS] score of 8 or less for children and adults, and/or Injury Severity Score [ISS] > 16 for children). Both studies assessed baseline demographics (age, gender, educational level) and initial injury severity (GCS, ISS, length of coma). The follow-up assessment included comparable measures of clinician-rated overall disability (Glasgow Outcome Scale Extended [GOS-E]) and clinical/neurological recovery, as well as self- and/or proxy-reported questionnaires assessing school/work situation, anxiety/depression symptoms, quality of life, and perceived burden by the caregiver.

Results

Age at injury was not associated with the GOS-E scores 7 to 8 years postinjury but was associated with length of coma and presence of motor deficits. Children evidenced shorter coma durations despite an overall level of postinjury disability comparable with adults, and adults tended to report more frequently the presence of postinjury motor deficits and greater fatigue levels when than children. In children/adolescents, the ISS predicted uniquely the postinjury GOS-E score, while for adults the most significant predictors were the GCS score, coma duration, and the number of completed years of education. For both children/adolescents and adults, overall disability 7 to 8 years postinjury correlated with a range of concurrent difficulties including school/work adaptations, presence of motor deficits and anxiety/depression symptoms, lower health-related quality of life, and higher levels of perceived burden reported by the caregivers.

Discussion

STBI occurring either in childhood or in adulthood encompasses a wide range of difficulties in the long term, but the impact of the initial injury severity underlying these impairments might be different according to age at injury. Our results underline the potential of using comparable measures for assessing overall and specific outcomes among pediatric and adult populations.