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**"Duration of Coma Predicts Outcomes in Pediatric and Adolescent Traumatic Brain Injury"**

Background: Traumatic brain injury (TBI) is a leading cause of pediatric morbidity and mortality in the United States, but little is known about long-term neurorecovery. In this study, we investigated the duration of post-TBI coma on outcomes.

Methods: We performed a retrospective review of pediatric and adolescent trauma patients (< 18 years old) admitted to an accredited pediatric inpatient rehabilitation (IPR) unit after TBI between January 1, 2018, and December 31, 2023. Outcomes include Pediatric Functional Independence Measure (WeeFIM) scores measured at IPR admission and discharge.

Results: 122 patients were included. When comparing patients who had duration of coma <7 (short, N=62) versus >/=7 days (long, N=60), we found patients with long duration had lower Glasgow Coma Scale at admission, have longer hospital (38.2±29.0 vs 15.2±10.7 days, $p<0.0001$) and IPR length of stay (LOS, 47.7±26 vs 27.2±20 days, $p<0.0001$), need a wheelchair (65 vs 29%, $p=0.0001$), and require botulism for spasticity (43.3 vs 22.5%, $p=0.0203$). WeeFIM scores across all domains (self-care, mobility, and cognition) were significantly worse for patients with longer duration of coma at both IPR admission and discharge (all $p<0.01$), and these patients were less likely to attain school/community reintegration (76 vs 93%, $p=0.01$). When analyzed for initial GCS, the findings were not reproduced.

Conclusions: Duration of coma greater than 7 days after TBI predicts worse outcomes for pediatric and adolescent patients.