

# Traumatic Brain Injury in different age groups: a CENTER-TBI analysis on clinical presentation, surgical treatment and second insults

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Argomento: Neuroanestesia e neuroranimazione

**Introduction:** Paediatric Traumatic brain injury (pTBI) represents a global health problem with a vast impact on our society. The anatomical and physiological differences between adults and children may have important implications for the presentation, management and care of pTBI.

**Methods:** CENTER-TBI patients admitted to the ICU or ward were included. This is an observational analysis comparing paediatrics (<18yrs), adults (18-65 years) and the elderly (>65yrs). Data were expressed by mean (standard deviation) or frequency (%). Clinical presentation, need for surgery and Cerebral Perfusion Pressure (CPP) have been evaluated.

**Results:** We included 227 paediatric patients (GCS $\leq$ 8 22%), 2437 adults (GCS $\leq$ 8 31%), and 997 elderly (GCS $\leq$ 8 22%) from CENTER-TBI. Road traffic accidents, associated with a higher Injury Severity Scale (ISS), were the principal mechanism of injury in adolescents (12-17yrs) and adults (60%, and 45% respectively). Incidental falls were more common in extreme ages (0-4yrs 75%, and elderly 67%). The need for urgent intracranial interventions was more common in adults (16%), while extracranial surgery was more frequent in adolescent and adults (11%). Decompressive craniectomy was more frequently performed in adults (10%). Mean daily CPP values during ICU stay (Fig.1) were similar among groups ( $\approx$ 72mmHg). Even though the use of vasopressor didn't show differences in groups, the lower values of CPP were recorded in the elderly. No differences among groups were found in the incidence of hypoxia and hypotension (15%, and 18%).

## Conclusion:

Extracranial lesions which require surgical treatment were more frequent in adolescent and adults, probably reflecting the mechanism and severity of the injury. Surgical decompressive craniectomy was infrequent in children and its role in elderly is controversial. Maintaining adequate CPP and avoiding secondary injury was mandatory in all patients with no significant differences among groups.

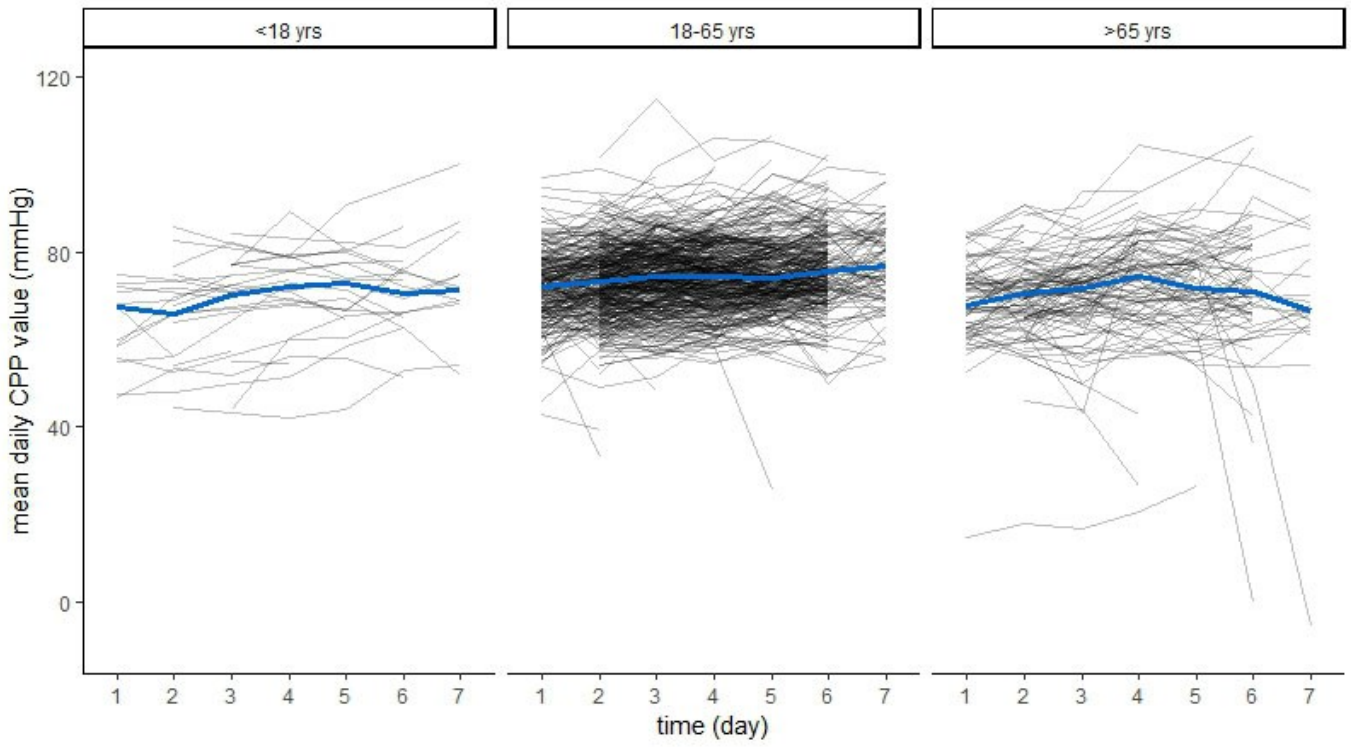


Fig. 1 – Mean Daily CPP trend during first week of ICU stay in paediatrics (<18 years), adults (18-65 years) and elderly (>65 years)