Prehospital and Early Clinical Care of Infants, Children, and Teenagers Compared to an Adult Cohort

Analysis of 2,961 Children in Comparison to 21,435 Adult Patients from the Trauma Registry of DGU in a 15-Year Period

Hendrik Wyen, Heike Jakob, Sebastian Wutzler, Rolf Lefering, Helmut L. Laurer, Ingo Marzi, Mark Lehnert, The Trauma Registry of DGU

Abstract

Background: Although the incidence of pediatric patients in emergency services is as low as 5–10%, trauma remains one of the leading causes of death during childhood. Only a few reports exist about the quality of the initial treatment of pediatric trauma patients. Therefore, we tested the hypothesis of whether prehospital treatment and emergency management in pediatric trauma patients is similar to the treatment that is provided for adult patients.

Materials and Methods: We performed a retrospective data analysis of the German Trauma Registry of the DGU from January 1993 to December 2007. Exclusion criteria were missing information about injury severity and/or age and patients older than 50 years. All pediatric patients were subdivided into five groups (infants 0–1 year, toddlers 2–5 years, children 6–9 years, pupils 10–13 years, teenagers 14–17 years) with regard to their age and were compared with the adult cohort (18–50 years). From 24,396 patients, 2,961 were below 18 years of age, thus, about 12% of the whole population of injured patients below the age of 50 years.

Results: 66.4% of infants sustained relevant head injuries (Abbreviated Injury Scale [AIS] ≥ 3), and this rate declined with increasing age. The mean Injury Severity Score (ISS) increased from 21.0 (±11.6) in the group of infants to 26.7 (±13.9) in the adult cohort. In all groups, the majority of patients were male. The injury pattern differed according to age, with predominant traumatic brain injury (TBI) in infants. During the preclinical treatment, infants were less often intubated and this was contrasted by a higher rate of cardiopulmonary resuscitation in this group (infants 16.2%, toddlers 6.8%, adults 3.1%). Diagnostic multi-slice computed tomography (CT) examination was less often performed in infants as compared to the other groups (infants 57.1%, toddlers 77.2%, adults 77.8%). Mortality and quality indicators such as timelines show no significant differences between children and adults.

Conclusion: We observed typical age-dependent differences regarding the injury pattern and severity and differences referring to the preclinical and initial treatment. With respect to the high rate of serious TBI in the infants and toddlers age groups, a more focused