

Research Article

Is Prehospital Time Important for the Treatment of Severely Injured Patients? A Matched-Triplet Analysis of 13,851 Patients from the TraumaRegister DGU®

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Background. The impact of time (the golden period of trauma) on the outcome of severely injured patients has been well known for a long time. While the duration of the prehospital phase has changed only slightly (average time: ~66 min) since the TraumaRegister DGU® (TR-DGU®) was implemented, mortality rates have decreased within the last 20 years. This study analyzed the influence of prehospital time on the outcome of trauma patients in a matched-triplet analysis. **Material and Methods.** A total of 93,024 patients from the TraumaRegister DGU® were selected based on the following inclusion criteria: ISS \geq 16, primary admission, age \geq 16 years, and data were available for the following variables: prehospital intubation, blood pressure, mode of transportation, and age. The patients were assigned to one of three groups: group 1: 10-50 min (short emergency treatment time); group 2: 51-75 min (intermediate emergency treatment time); group 3: >75 min (long emergency treatment time). A matched-triplet analysis was conducted; matching was based on the following criteria: intubation at the accident site, rescue resources, Abbreviated Injury Scale (AIS) of the body regions, systolic blood pressure, year of the accident, and age. **Results.** A total of 4,617 patients per group could be matched. The number of patients with a GCS score \leq 8 was significantly higher in the first group (group 1: 36.6%, group 2: 33.5%, group 3: 30.3%; $p < 0.001$). Moreover, the number of patients who had to be resuscitated during the prehospital phase and/or upon arrival at the hospital was higher in group 1 ($p = 0.010$); these patients also had a significantly higher mortality (group 1: 20.4%, group 2: 18.1%, group 3: 15.9%; $p \leq 0.001$). The number of measures performed during the prehospital phase (e.g., chest tube insertion) increased with treatment time. **Conclusions.** The results suggest that survival after severe trauma is not only a matter of short rescue time but more a matter of well-used rescue time including performance of vital measures already in the prehospital setting. This also includes that rescue teams identify the severity of injuries more rapidly in the most-severely injured patients in critical condition than in less-severely injured patients and plan their interventions accordingly.

1. Introduction

The prehospital phase is still crucial for the outcomes of severely injured patients. In particular, the term “the golden period of trauma” is of considerable importance in this context [1, 2]. With regard to the golden period of trauma,

a paradigm shift has occurred, particularly in German-speaking countries. While in the early 1990s management was aimed at comprehensive therapy at the accident site, currently, the strategy is to stabilize trauma patients at the site of the accident and transfer them to the hospital as soon as possible. Unless it is essential for patient survival, medical