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Effect of private versus emergency medical systems transportation in trauma patients in a mostly physician based system- a retrospective multicenter study based on the TraumaRegister DGU®

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Abstract

Background: The effects of private transportation (PT) to definitive trauma care in comparison to transportation using Emergency Medical Services (EMS) have so far been addressed by a few studies, with some of them finding a beneficial effect on survival. The aim of the current study was to investigate epidemiology, pre- and in-hospital times as well as outcomes in patients after PT as compared to EMS recorded in the TraumaRegister DGU®.

Methods: All patients in the database of the TraumaRegister DGU® (TR-DGU) from participating European trauma centers treated in 2009 to 2013 with available data on the mode of transportation, ISS \geq 4 and ICU treatment were included in the study. Epidemiological data, pre- and in-hospital times were analysed. Outcomes were analysed after adjustment for RISC-II scores.

Results: 76,512 patients were included in the study, of which 1,085 (1.4 %) were private transports. Distribution of ages and trauma mechanisms showed a markedly different pattern following PT, with more children < 15 years treated following PT (3.3 % EMS vs. 9.6 for PT) and more elderly patients of 65 years or older (26.6 vs 32.4 %). Private transportation to trauma care was by far more frequent in Level 2 and 3 hospitals (41.2 % in EMS group vs 73.7 %). Median pre-hospital times were also reduced following PT (59 min for EMS vs. 46 for PT). In-hospital time in the trauma room (66 for EMS vs. 103 min for PT) and time to diagnostics were prolonged following PT. Outcome analysis after adjustment for RISC-II scores showed a survival benefit of PT over EMS transport (SMR for EMS 1.07 95 % CI 1.05–1.09; for PT 0.85 95 % CI 0.62–1.08).

Discussion: The current study shows a distinct pattern concerning epidemiology and mechanism of injury following PT. PT accelerates the median pre-hospital times, but prolongs time to diagnostic measures and time in the trauma room.

Conclusions: In this distinct collective, PT seemed to lead to a small benefit in terms of mortality, which may reflect pre-hospital times, pre-hospital interventions or other confounders.

Keywords: Polytrauma, Private transport, Emergency services, Emergency department

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