20 years of trauma documentation in Germany—Actual trends and developments

TraumaRegister DGU®

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ABSTRACT

Introduction: The TraumaRegister DGU® has been founded 20 years ago. Although initially supported by larger hospitals and universities, it has recently become a representative registry for the care of severely injured patients in Germany. Based on the registry data some important trends and developments of the recent decades are presented.

Patients and methods: German trauma patients with an Injury Severity Score (ISS) \( \geq 16 \) were eligible if primary admitted from the scene. All cases documented between 1993 and 2012 (20 years) were eligible. For selected variables, an average change per years was calculated using linear regression analysis.

Results: A total of 49,801 patients was analysed. The mean age was 46.3 years, and 72% were males. The following relevant trends could be observed: The average age increased dramatically from 38 to 50 years. Pre-hospital intubation rate was halved in patients with Glasgow Coma Scale (GCS) > 8 but remained constant in unconscious patients (GCS \(< 8\); 90% intubation rate). Pre-hospital volume administration decreased as well, which led to less blood transfusions (from 45% to 16%). The use of helicopters for transportation into a trauma centre decreased as well but today still 27% of all cases are transported by air. Whole-body CT was performed in about 80% of patients; this value is stable in the last four years. Hospital mortality could be reduced and was 2–3% lower than expected in recent years. The Revised Injury Severity Classification (RISC) score used as a reference here was based on TR-DGU data from the 1990s.

Conclusion: Standardised prospective registration of severely injured patients over 20 years allows to empirically monitor trends and developments in acute trauma care.

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Introduction

Twenty years ago, in 1993, the first patient has been documented in the TraumaRegister DGU® (TR-DGU). Inspired by results of the Major Trauma Outcome Study (MTOS) [1], five German hospitals initiated a prospective structured data collection of anonymized data of severely injured patients. From year to year, the number of participating hospitals as well as the number of documented cases increased. By the end of the century, more than 50 hospitals included nearly 2000 cases per year. This positive trend continued also in the new century, however, the big breakthrough was caused by the formation of local trauma networks [2] (see also Ruchholtz et al., in this issue). The German Trauma Society (Deutsche Gesellschaft für Unfallchirurgie, DGU) suggested establishing such local networks in combination with a regular auditing and certification of all participating hospitals. As part of this certification process, obligatory participation in the TR-DGU was required. This led to an enormous increase in the number of TR-DGU hospitals as well as documented patients since 2005 (Fig. 1).

The continuous documentation of care over a long period of time offers a unique opportunity to discover trends and to support subjectively perceived developments with hard data. Some of these trends will be demonstrated in this study. We will restrict our analysis to Germany, although there is an increasing interest from other European countries as well (Austria, Belgium, Finland, Luxemburg, The Netherlands, Slovenia, Switzerland). Actually about 10% of cases were treated in non-German hospitals. The changes we observed during the recent years refer to all areas of trauma care: the patients, the pre-hospital care, the early in-hospital care, diagnostics, and finally the outcome.