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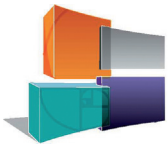

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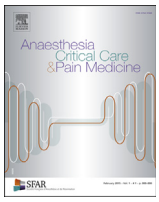

Editorial

Epidemiology of trauma: From medico-administrative database to large prospective registry

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Using administrative health database, the study published in *The Journal* by Bège et al. from the Assistance publique–hôpitaux de Marseille and Aix-Marseille University, offers a window on the epidemiology of trauma in France in 2016 [1]. The first important piece of information revealed by this study is the major amount of hospital admission related to trauma, with approximately 144,000 admissions per year, representing 13% of the total hospital admissions. Interestingly, based on the analysis of Injury Severity Score, 6.6% of the cases ($n = 9400$) were classified as severe. More than 40,000 patients were admitted to intensive care unit (ICU), and more than 50% of the patients required surgery. The other major issue pointed out by this study is the global mortality of trauma patients admitted to hospital, approaching 6%, with significant regional variation. The 30-day mortality reached nearly 20% for the severe trauma patients. As well described in other epidemiological studies, age was also a strong predictor of mortality. The Marseille team should be congratulated for being able to provide these data, certainly of major interest for the Anaesthesiology and Intensive Care community, but also for the whole medical community.

Trauma remains an underestimated and neglected public health challenge [2] that is likely to increase on a global level. Important resources are funnelled to pathologies that occupy a predominant place in public awareness and institutional attention, such as cardiovascular disease [3], although mortality from myocardial infarction has dropped to 2.5% thanks to a concerted effort. Yet, many would estimate the risk to die from infarction higher than from trauma. It is time to focus the public attention and resources on the care of major trauma. In order to do so, we require robust epidemiological data to estimate appropriately the burden of disease and the use of associated resource use. Trauma remains a neglected entity, because of a lack of reliable data. Currently, we probably underestimate the true incidence and burden of trauma as a disease, although for many victims, trauma is an entry into chronic disease. The physical, mental, and socio-economic effects on patients, families and communities are long lasting. About 20% of trauma victims never return to work [4]. Several countries such as Norway, Netherlands, United Kingdom or Germany have demonstrated that the systematic analysis of high quality epidemiological data is a cornerstone for quality improvement and for reduction of trauma mortality and morbidity. High quality epidemiological data are essential to conceive any meaningful preventive strategy, one reason being that in opposition to common belief, road accident associated trauma only represents about half of the trauma disease burden.

The study presented by Bège et al. has some limitations. Although administrative data can be an important source of information for trauma, they cannot be a substitute for prospective registries. Administrative and coding data were not conceived as scientific and epidemiological, but as coding and health expenditure tools, which are not appropriate to map specifically the clinical complexity of multi- or severe mono-trauma [5]. As a consequence, they are likely to over- or under-estimate the true incidence and resource use of trauma. Furthermore, administrative databases lack data granularity and robustness with inexistent data monitoring, and contain a high level of missing data.

Large prospective database is probably the adequate answer to a public health challenge with limited and diverse cases across one country. Severe trauma is one of these challenges. Such data can help determine the effect of several parameters on global outcome, such as mortality or quality of life. For instance, with the TRENAU registry, prospective multicentre data have been used to explore the relationship between age and neurologic outcome after traumatic brain injury [6]. Diverse demographic data may be also used to further explore the relationship between classic parameters and outcome. Recently, merging the TRAUMABASE database and the TRENAU registry allows analysing the effect of prehospital time on mortality after severe trauma. The first multicentre study regarding the concept of Golden hour in a physician-staffed prehospital system was then performed. Beyond "pure science", national registry may help demonstrate the effect of a specific organisation on classic indicators such as under- and over-triage [7]. The structure and organisation of trauma systems are enriched by pragmatic research focusing on actual indicators.

From an epidemiological perspective, the work of Bège et al., based on medico-administrative database, is certainly of great

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interest for Trauma patients. It highlights the global burden of trauma, representing a major cause for hospital admission, but also for ICU stay. It also highlights significant regional variations for hospital mortality, generating important questions. For example, the question of identifying factors influencing trauma mortality, from patient characteristics to global healthcare organisation level, is of major importance. These points should be addressed based on robust and detailed database, which can only be provided by prospective registry focusing on trauma patients.

Disclosure of interest

The authors declare that they have no competing interest.

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Tobias Gauss[a], Pierre Bouzat[b], Thomas Geeraerts[c,*]
[a]*Department of Anaesthesia and Intensive Care, Beaujon Hospital, hôpitaux-Paris-Nord-Val-De-Seine, AP–HP, 92110 Clichy, France*
[b]*Grenoble Alps Trauma centre, Grenoble Alps University, Grenoble University Hospital, 38000 Grenoble, France*
[c]*UMR 1214, Inserm/UPS, ToNIC, Department of Anaesthesia and Intensive Care, Toulouse NeuroImaging Center, Toulouse University Hospital, University Toulouse 3 Paul-Sabatier, 31059 Toulouse, France*

*Corresponding author. Toulouse University Hospital, Coordination d'Anesthésie, Pierre-Paul Riquet Hospital, 31059 Toulouse cedex 9, France
E-mail address: geeraerts.t@chu-toulouse.fr (T. Geeraerts).