



UPDATE: AN UPDATE IN CRITICAL TRAUMA DISEASE

Epidemiology of severe trauma[☆]



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Abstract Major injury is the sixth leading cause of death worldwide. Among those under 35 years of age, it is the leading cause of death and disability. Traffic accidents alone are the main cause, fundamentally in low- and middle-income countries.

Patients over 65 years of age are an increasingly affected group. For similar levels of injury, these patients have twice the mortality rate of young individuals, due to the existence of important comorbidities and associated treatments, and are more likely to die of medical complications late during hospital admission.

No worldwide, standardized definitions exist for documenting, reporting and comparing data on severely injured trauma patients. The most common trauma scores are the Abbreviated Injury Scale (AIS), the Injury Severity Score (ISS) and the Trauma and Injury Severity Score (TRISS).

Documenting the burden of injury also requires evaluation of the impact of post-trauma impairments, disabilities and handicaps. Trauma epidemiology helps define health service and research priorities, contributes to identify disadvantaged groups, and also facilitates the elaboration of comparable measures for outcome predictions.

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PALABRAS CLAVE

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Trauma grave;
Caídas;
Abbreviated Injury Scale (AIS);

Epidemiología del trauma grave

Resumen El trauma grave es la sexta causa de muerte y la quinta de discapacidad en el mundo. En los menores de 35 años es la primera causa de muerte y discapacidad. Los accidentes de tráfico son los principales responsables en los países de ingresos medios-bajos, que son los más poblados.

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*Injury Severity Score (ISS);
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Los pacientes mayores de 65 años son una cohorte creciente. Para niveles lesionales similares tienen el doble de mortalidad que los jóvenes, debido a su elevada comorbilidad y los tratamientos asociados.

No existen globalmente definiciones estandarizadas para documentar, informar y comparar datos en los traumatizados graves. Los más utilizados son el Abbreviated Injury Scale (AIS), el Injury Severity Score (ISS) y el Trauma and Injury Severity score (TRISS).

Las herramientas para la evaluación de la discapacidad postraumática deben mejorarse. Los estudios epidemiológicos son fundamentales para evaluar el impacto en la salud pública, mejorar las estrategias preventivas y evaluar las terapéuticas.

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Introduction

Severe or major trauma is a worldwide pandemic and one of the leading causes of death and disability. Its distribution at global, national and local level differs, however. Trauma is very heterogeneous in terms of its underlying causes, the types of injuries and their severity, and is characterized by considerable prognostic uncertainty. The risk factors of trauma are related to human behavior and to sociosanitary, occupational, economic, political and cultural variables. Its management in turn depends on a broad range of structures, organizations and clinical and surgical specialties. Lessening the burden of trauma disease is a complex task requiring a multidiscipline approach and great insistence in order to prevent it from continuing to be viewed as the "unattended epidemic".¹

Estimation of the global burden of disease in the world is an arduous and difficult task, and constitutes a stimulating scientific challenge and an urgent moral obligation. The Global Burden of Disease Study (GBD) 2010, auspiced by the World Health Organization (WHO), represents the most important systematic initiative to date for knowing the global distribution of the most prevalent diseases and traumatisms, as well as the risk factors for health.² Despite logical doubts regarding the validity, reliability, transparency and plausibility of its estimations, the GBD is a solid epidemiological information source.³

In addition to mortality data, the GBD informs of the nonfatal sequelae (disabilities and handicaps) for the survivors—this being particularly useful in trauma patients, who are often healthy young individuals that suffer lifelong disabilities as a result of trauma. The study measures the burden of disease in terms of disability-adjusted life years (DALYs),^{4,5} a parameter that combines the life years lost as a result of premature death (years of life lost [YLLs]) with the life years of disability (years of life with disabilities [YLDs]). In this regard, DALY represents the difference between current life status and that of an ideal population living to an old age and free of diseases and disabilities.

Global data

According to the GBD, in the year 2010^{2,6} the global burden of disease was 2490 million DALYs (361/1000 inhabitants), of which traumatisms accounted for 278.6 million (11.2%). In turn, 29% of these injuries corresponded to traffic accidents,

12.6% to falls and 9.16% to interpersonal violence. Traffic accidents generate 3% of the global DALYs. Interpersonal violence is the leading cause of DALY in Central America–The Caribbean and in Sub-Saharan Africa.⁶ Globally, DALYs due to suicide are equivalent to one-half of those attributable to traffic accidents,² with great variability between countries. [Table 1](#) describes the global ranking (in terms of the number of DALYs) of the different causes of trauma contemplated by the GBD, distributed according to gender. In this regard, among males, traffic accidents are seen to rank in fourth position.

Regarding mortality, trauma globally is the sixth leading cause of death and the fifth ranking cause of moderate and severe disability. One out of every 10 deaths is a result of trauma in both sexes. In those under 35 years of age, it is the first cause of death and disability.⁶ [Table 2](#) shows the ranking of the different types of trauma as a cause of mortality. Among males, traffic accidents are seen to rank in sixth place. [Fig. 1](#) relates the different age intervals and causes of trauma. In this regard, between 25 and 35 years of age, traffic accidents, violence and self-inflicted injuries (self-harm) occupy the leading positions among all causes of mortality. After the age of 45 years the figures decrease, and accidental falls gradually become more important—representing the predominant type of trauma after 75 years of age. Except in areas of conflict and in certain urban epidemic zones, e.g., in the United States (20–45%) or South Africa (up to 60%), penetrating traumatisms represent a small proportion (less than 15%).

Traumatisms are more frequent and are progressively increasing in middle- to low-income countries,^{7–9} which account for 90% of the world population, since these are regions characterized by chaotic industrialization, a dramatic rise in the number of motor vehicles, and frequent armed conflicts. Furthermore, in such countries the effects of the injuries are more serious, since their public health systems are still largely underdeveloped. These countries contribute 90% of the overall fatalities, with an enormous impact in terms of disability.

In Spain, the National Statistics Institute (INE)¹⁰ registered the death of 402,950 people in the year 2012. According to the distribution by chapters of the International Classification of Diseases (ICD-9-CM),¹¹ deaths due to external causes totaled 14,005 (3.5% of the total), and represented the leading cause of mortality among individuals between 15 and 39 years of age (15.4/100,000 individuals).

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