Acute poisonings admitted to a university hospital in Belgium: characteristics and impact on the costs.

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1) Context

This study is a retrospective analysis of prospectively collected data considering patient records of all poisoning-related admissions of patients aged 14 years or older admitted to the ED of the Ghent University Hospital (GUHED), a 1,062-beds tertiary care referral center in Belgium with about 34,000 ED admissions per year. Data were collected from 1 January 2017 to 31 December 2017.

2) Problem

Poisoning poses a significant global public health problem. According to WHO data, an estimated 193,460 people die worldwide from unintentional poisoning. Hospitals, and in particular emergency departments, are faced with a considerable number of admissions leading to a substantial number of hospitalizations and costs.

3) Intervention

Therefore, the aim of the present study is (1) to inventarize the characteristics of acute poisoning admissions to the emergency department in a Belgian university hospital, (2) to identify risk factors for hospitalization type and (3) to calculate the direct medical cost of acute poisonings.

4) Strategy for change

Data of 2017 (1st January to 31st December) were collected and analyzed retrospectively using patients’ medical records and invoices. Patients were categorized in three groups: (1) ambulatory patients discharged home after treatment in the emergency department (ED-amb), (2) patients requiring observation in the emergency department for a maximum of 24 hours (ED-24h) and (3) patients admitted to the hospital ward (Hosp). Factors possibly associated with the type of hospitalization were identified by logistic regression.

5) Measurement of improvement

A total of 1,214 hospital admissions were included, accounting for 3.6% of all ED admissions. Men (62.2%) and the age group 21-40 years (43.0%) accounted for the largest proportion. The substances most commonly involved were ethanol (74.1%), benzodiazepines (11.7%), cocaine (6.8%), cannabis (6.5%), antidepressants (5.7%) and amphetamines (5.8%). A total of 4,561 treatment acts were recorded, most commonly monitoring of vital signs (63.6%) and administration of intravenous fluids or medication (62.8%). Patients were discharged home after care
in the emergency department (ED-amb) in 54.5% of admissions and were admitted to the emergency-department-24-hours-ward (ED-24h) or hospitalized (Hosp) in 24.6% and 20.9% of admissions respectively. The factors strongly associated with the hospitalization type are age, hour of admission, location before admission, degree of clinical severity, use of antidotes and medical imaging. The total cost amounted €1,386,317.06, with an average of €1,179.85 (SD 2,617.40) per patient/admission with a median cost of €418.41 (IQR €1,063.75).

6) Lessons learnt

Acute poisonings account for a considerable proportion of emergency department admissions representing a significant organizational and financial burden to hospitals and healthcare workers. Efficient triage of patients to the appropriate level of care in a safe and qualitative way contributes to avoiding the negative aspect of overcrowding in emergency departments, resulting in less time left for qualitative care for the most severe cases. In this context, insight into the elements associated with the hospitalization is one of the key factors.

7) Messages for others

Because of the difficulty to compare results between different emergency departments, it is strongly recommended to develop a uniform template aimed to support the highly-needed preventive and care measures with comparable facts and figures to be able to achieve the highest possible quality standard in the most cost-efficient way. The use of WHO International Classification of Diseases 10th Revision (ICD-10) is highly recommended. This use of a clear and international standard may be a first step in the development of a template for uniform data reporting and comparison between centers in order to facilitate international comparison.

8) Involving patients, carers or family members in the project

Patients were included in the study when the reason for admission could be encoded in T36-T50 (poisoning by drugs, medicaments and biological substances) or in T51-T65 (toxic effects of substances chiefly nonmedicinal as to source) of the International Classification of Diseases (ICD-10-be). Because of the retrospective character of the study, patients or family members were not directly involved.

9) Ethics Approval

The study protocol was approved by the Ethical Committee of the Ghent University Hospital.

10) Conflicts of interest

The authors report no conflict of interest.