



Data Toxicology in Portugal: Where are we?

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Abstract

Despite the efforts of the World Health Organization (WHO), there are no global statistics on clinical intoxications. While WHO recommends that all countries establish and strengthen poison centers, less than half of WHO member states have only one of these centers. Due the lack of information, this article aims to give a current and critical view of the situation of clinical toxicology in Portugal.

Studies and data about clinical intoxications in hospital emergency services in Portugal between 2010 and 2022 were analyzed. In Portugal, there are only some punctual national studies concentrated in certain geographic areas. Different poisoning parameters were regarded. In those studies, differences were found concerning the route of administration, the time distribution of poisonings and the toxic substances involved. The results are in line with the statistics of the official Poison Center of Portugal Centro de Informação Antivenenos. There is still a lot to be done by the Portuguese authorities to emulate other countries' situation. This is the only way to get to know the country's profile, through comparison with data from other countries, and also allowing establishing public health policies and alert systems.

Keywords: Clinical Toxicology; Poisoning; Emergency Admissions; Portugal

Introduction

According to data from European hospitals, about 1% of all hospital emergency departments admissions are related

to poisoning. Although this does not seem very high at first glance, it constitutes an important component when the risk of a potentially fatal outcome in many of these cases is considered [1].

The pattern of acute poisonings varies between different geographic areas and changes over time. The main problem that exists today is that many of the poisoning cases are not reported to the different centers that exist in each country and there is no uniformity of information that allows later to establish statistics at the world level to assess dangerous situations and establish public health protection policies worldwide. In Portugal, the Centro de Informação Antivenenos (CIAV) is the official Poison Center, which is a medical center for telephone consultation in the field of toxicology [2]. However, it does not reflect the real number of exposures/poisonings, since not all cases are reported to CIAV, either by hospitals or the public. Furthermore, there is no legal obligation for hospitals to inform CIAV about the outcome of each patient, which jeopardizes the comprehensive assessment in particular the most serious cases.

Methods

A search for published works and statistics in Portugal concerning clinical intoxications has been carried out and publications from 2010 to now were selected.

Results and Discussion

There are no epidemiological data as current and studies as comprehensive as those carried out in other countries, namely that by the American Association of Poison Control Centers (AAPCC) [3], with only a few studies being performed in specific geographic areas and focused on certain groups or specific toxics [4-7]. On the other hand, to date, there are only some punctual national studies in certain geographic areas [8-14]. In those studies, differences were found concerning route of administration, time distribution of poisonings and toxic substances involved. Cardoso, et al. [14] have evaluated the number of cases of poisoning in a hospital of the centre of Portugal; 95635 urgent cases were observed in that year, 0.72% of which represented possible poisonings. Most of these poisonings were voluntary (87.61%), and in 93.45% of them suicidal or self-destructive behavior was involved. In 90.93% of the episodes the toxic substance had been ingested. Drugs (77%) – anxiolytics, hypnotics and sedatives (benzodiazepines) – and pesticides (14%) are the main products involved in poisonings. The authors did not evaluate poisoning episodes by alcohol. Two clinical toxicology studies were performed in 2016, in a hospital of the littoral [13] and a hospital in the interior

of Portugal [12], aiming at comparing poisoning profiles in different districts during the year 2015. The emergency admissions corresponding to poisonings in the littoral and interior represented 0.48 and 0.26% respectively. Although there is no general trend in the admissions typology between regions, alcohol and drugs were the main involved agents. Concerning drugs, anxiolytics are the most detected compounds (42%), and there is a direct correlation between chronic pharmacotherapy and emergency admissions in the interior region. As for drugs of abuse, in 48% of cases it was not possible to identify the agent. The different interregional patterns of poisoning justify implementing targeted public health policies. Table 1 resumes studies published in clinical poisoning situations in Portugal. Some of these studies only a few groups of toxics are described [15-18], or involved only pediatric population [19-21]. No pattern of exposure unique to this region was identified in these studies. In fact, these results (Table 1) match the statistics of CIAV [23]; between 2014-2018, medicines have been involved in 70% of poisonings, usually accidental in children and intentional in adults, being benzodiazepines the most often found drugs. Concerning the substances' absorption, in most situations this occurs orally, followed by the respiratory route in adults. Half of the cases (51%) in adults were voluntary. Alcohol was present either alone or in combination with medicines and drugs of abuse. Two studies were performed in 2015, in which poisoning data were collected from coastal [13] and country hospitals [12] from central Portugal. These were the only studies in which patterns of exposure could be compared, since data collection was performed in the same year. In the coastal hospital, poisonings prevailed in male individuals (62.6%), whereas in the countryside the opposite occurred (39.5%), in the same age group. The co-existence of chronic diseases was a significant factor, occurring in 62 and 33% of the cases in the country and the coastal hospitals, respectively. However, in what concerns psychiatric background of the individuals, 81.4 and 70.7% were verified in coastal and country hospitals, respectively. Alcohol poisonings were the main cause of emergency situations in the coastal hospital (64.6%), followed by drugs (22.5%). In the country hospital, drug poisonings prevailed (58.0%) followed by substances' abuse (16.8%), from which alcohol was involved in 10.9%. Benzodiazepines were the drugs group with a greater incidence of poisonings in both hospitals (42%). The oral administration route was prevalent in both hospitals (92%).

Parameter / Reference	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Region	North Centre	Island	North	North	Centre Interior	Centre Littoral	Centre
Year(s)	2018 and 2019	2018	2017	2017 and 2018	2015	2015	2010
Percentage of poisoning episodes in the total emergency admissions	N.E.	N.E.	0.18	N.E.	0.26	0.48	0.72
Gender	Female	Male	Female	Female	Female	Male	Female
Mean age	46	42	43	44	55	41	40
Main poisoning route	N.E.	N.E.	Oral (92%)	Oral (99.5%)	Oral (87%)	Oral (96%)	Oral (91%)
Aetiology	N.E.	Alcoholic (57%) and voluntary (36%)	Voluntary (84%)	Voluntary (97%)	Accidental (50%)	Voluntary (95%)	Voluntary (88%)
Background	N.E.	N.E.	history of poisonings and/or psychiatric manifestations (67%) from 92% of patients with toxicological/psychiatric history.	History of psychiatric diseases (78%) from 84% of patients with concomitant diseases	history of poisonings and/or psychiatric manifestations (30%) from 45% of patients with toxicological/psychiatric history.	history of psychiatric diseases (27%) and history of poisoning (21%)	N.E.
Main toxics	Drugs (64%) - benzo diazepines	Alcohol (59%) and drugs (9%)	Drugs (67%) -anxiolytics, hypnotics and sedatives	Alcohol (59%) and drugs (26%) - anxiolytics, hypnotics and sedatives	Drugs (61%) - benzo diazepines	Alcohol (65%) and drugs (23%) - anxiolytics, hypnotics and sedatives	Drugs (77%) - anxiolytics, hypnotics and sedatives (benzo diazepines) and pesticides (14%)
Treatment	N.E.	N.E.	supportive treatment, Gastric lavage/activate charcoal and others (21%), supportive treatment and others (19%), supportive and/or gastric lavage/activated charcoal (15%) and supportive treatment (13%)	Gastric lavage (67%), Activated charcoal (59%) and Supportive treatment (59%)	Supportive treatment (67%), symptomatic treatment (41%), antidote (31%) and gastric lavage (28%)	N.E.	Supportive treatment and gastric lavage/activated charcoal (37%) and supportive treatment (24%)

Destiny after emergency episode	Discharge without reference (40%) and hospitalization (36%)	Abandonment (42%) and discharge without reference (41%)	Discharge without reference (43%) and hospitalization (35%)	Hospitalization (68%)	Discharge without reference (58%) and hospitalization (28%)	Discharge without reference (54%)	Discharge without reference (74%) and hospitalization (24%)
Affluence	May (8%) and August (11%)	December (11%), June (11%) and July (10%)	June (12%), July (11%) and August (11%)	August (11%) and February (10%)	June (12%) and July (11%)	August, January and May	N.E.

Table 1: Data about clinical poisoning situations in Portugal.

There is no study that establishes the prevalence of poisonings at the national level, which emphasizes the lack of updated studies to cover this huge limitation and also that allow to keep track of trends and changes regarding acute poisonings. However, there are enormous efforts on the part of the CIAV to have more complete statistics, namely by regions, and to improve data collection or clinical management.

Conclusion

Gathering all of these data into one national database would improve, together with annual studies, the knowledge of poisoning patterns in Portugal. This database would further allow authorities to be aware of poisonings by substances/products entering the market at spaces or act as an alert concerning new compounds, such as new psychoactive substances. In this sense, much is still needed to do by the Portuguese authorities in order to catch up with other countries. This is the only way to know the country's profile, via comparison with data from other countries, allowing establishing public health policies by means of warning systems.

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