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Epidemiological Surveillance of Exogenous Intoxications Attended in a Teaching Hospital

ABSTRACT | Objective: Describe the profile of exogenous intoxication attended in a teaching hospital, between June 2015 and June 2019. Method: Documental, retrospective, descriptive study, with qualitative analysis. The data collection was done on the Information System of Notification Aggravation (SINAN), between June 2015 and June 2019. The total sample was 152 exogenous notifications. Results: The predominant gender was the female, with 85 cases, there was the predominance of the ages between 20 and 34 years old, in the local of exposition, 132 cases took place in the residence, in 2017 and 2018 there was a higher incidence. 127 toxicological agents were identified among these 98 cases, the anticoagulants, benzodiazepines, and antidepressants had higher incidence. Conclusion: Young adults aged between 20 and 34 years old, especially of the female gender are predominant in notifications of exogenous intoxication, with bigger concentration of people with incomplete educational attainment.

Keywords: Intoxication, Epidemiological surveillance, Notification.

RESUMEN | Objetivo: Describir el perfil de intoxicaciones exógenas atendidas en un hospital docente, en el período de junio de 2015 a junio de 2019. Método: Estudio documental, retrospectivo, descriptivo, con análisis cuantitativo. La recopilación de datos tuvo lugar en el Sistema de Información de Divulgación Notificable (SINAN), en el periodo de junio de 2015 a junio de 2019. El total de la muestra fueron 152 notificaciones exógenas. Resultados: En cuanto al género, hubo un predominio de mujeres con 85 casos, hubo un predominio de edades, entre 20 y 34 años, para el lugar de exposición, 132 casos ocurrieron en la residencia, en los años 2017 y 2018 tuvieron una mayor incidencia. Se identificaron 127 agentes toxicológicos entre estos 98 casos, los anticoagulantes, las benzodiazepinas y los antidepresivos tuvieron una mayor incidencia. Conclusión: los adultos jóvenes entre 20 y 34 años, principalmente mujeres, predominan en las notificaciones de intoxicación exógena, con mayor concentración para las personas con escolarización incompleta.

Palabras claves: Intoxicación; Vigilancia epidemiológica; Notificación.

RESUMO | Objetivo: Descrever o perfil das intoxicações exógenas atendidas em um hospital de ensino, no período de junho de 2015 a junho de 2019. Método: Estudo documental, retrospectivo, descritivo, com análise quantitativa. A coleta dos dados ocorreu no Sistema de Informação de Agravamento de Notificação (SINAN), do período de junho de 2015 a junho de 2019. O total da amostra foi 152 notificações exógenas. Resultados: Quanto ao sexo predominou o feminino com 85 casos, houve predomínio para as idades, entre 20 a 34 anos, para o local de exposição, 132 casos aconteceram na residência, nos anos de 2017 e 2018 apresentaram maior incidência. Foram identificados 127 agentes toxicológicos dentre esses 98 casos, os anticoagulantes, benzodiazepínicos e antidepressivos tiveram maior incidência. Conclusão: Jovem adulto nas idades entre 20 a 34 anos, principalmente do sexo feminino predominam nas notificações de intoxicação exógena, com maior concentração para as pessoas com nível escolar incompleto.

Palavras-chaves: Intoxicação, Vigilância epidemiológica, Notificação.

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INTRODUCTION

Exogenous intoxication is characterized by clinical symptoms caused by the ingestion of a toxic substance, which can be accidental, overdose, chemical interaction or sometimes by attempted suicide.⁽¹⁾ The etiology of intoxication can come from several sources, such as ingestion of toxic or contaminated foods, medications, use of pesticides, caused by pathological factors or exogenous factors caused by the environment.^(2,3)

Attention to care for exogenous intoxications plays an important role in triggering actions aimed at their prevention due to the great direct influence on the disease's morbidity and mortality. It

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is estimated that 1,5 to 3% of the population suffers some type of exposure to toxic agents, and that Brazil has 4.800.000 cases of exogenous poisoning annually. ^(4,5,6)

In Brazil, it is estimated that 60% of exogenous intoxications are caused by the ingestion of medications, with intentional ingestion by attempted suicide standing out and accidental ingestion occurring more frequently in children under three years of age, characterized by their vulnerability. ⁽⁷⁾

Ordinance number 2,472, of August 31, 2010, defines by intoxication that caused by chemical substances, including pesticides, toxic gases and heavy metals, being public health conditions and events of compulsory notification throughout the national territory and registered in the Notifiable Diseases Information System (Sistema de Informação de Agravos de Notificação SINAN). ⁽⁷⁾

Concerning intoxications, there are toxicological assistance centers that provide daily assistance in order to guide actions and train health professionals aiming to systematize conduct and serve as a counter-reference to health services, disseminating research, experiences and protocols, to guide actions in measures promotional and rehabilitation of the intoxicated individual. Established since 1986, the Toxicological Information Centers (Ceatox). ^(8, 9)

Epidemiological knowledge, which addresses the identification variables of notified cases, is of great importance for health, as it guides prevention, promotion and rehabilitation actions. In view of the above, it was asked: What is the profile of exogenous intoxications treated at a teaching hospital? To this end, this study aimed to describe the profile of exogenous intoxications seen at this hospital, from June 2015 to June 2019.

METHOD

Descriptive, retrospective and documentary study, with quantitative



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analysis of cases notified by exogenous intoxication treated at a teaching hospital and notified by the Hospital Epidemiological Surveillance Center (Núcleo de Vigilância Epidemiológica Hospitalar - NVEH).

Data were collected from the Notifiable Diseases Information System (SINAN) of all exogenous intoxication notification forms notified in the period from June 2015 to June 2019. For data collection, a script was developed, divided into two parts, the first part was about sociodemographic characteristics, such as: sex, age, race / color, education, and occupation / profession, the second was related to the characteristics of exogenous intoxications, such as: place of exposure, toxic agent, active principle of the toxicological agent, vehicle of contamination and evolution of the case. All selected variables are included in the mandatory exogenous poisoning notification form. Data collection was carried out in July 2019. During the study period, 152 cases were notified, this being the total sample. There was no exclusion of notified cases, as the variables selected for this study were completely filled in SINAN.

This study is part of the project, called "Characterization of the Profile of Diseases and Infections of Mandatory Notification and Infections Related to Health Care (IRHC)" which was approved by the Ethics and Research Committee that involves Human Beings, from Universidade Estadual do West of Paraná / UNIOESTE, according to opinion number 2.751.985 and CAAE 90600318.3.0000.0107, respecting the principles of Resolution 466/2012 of the National Commission for Ethics and Research Involving Human Beings. ⁽¹⁰⁾

The data obtained were summarized in spreadsheets of Microsoft Office Excel version 2007 software and subsequently analyzed by descriptive statistics, obtained by the measures of relative and absolute frequency of the notified cases and later analyzed and displayed in a table.

RESULTS

During the study period, 152 cases of exogenous intoxication were reported, predominantly females with 85 (55,92%) cases and males with 67 (44,07%).

Allusive to age: less than one year, five cases (3,28%), one to four years, 17 (11,18%), five to nine years, seven cases (4,60%), 10 to 14 years, with 16 (10,52%), 15 to 19 years old, 15 (9,86%), 20 to 24, with 18 (11,84%), 25 to 29 cases, 12 (7,89%), 30 to 34 cases, seven (4,60%), 35 to 39, with 9 (5,92%), 40 to 44, with 9 (5,92%), 45 to 49 with 9 (5,26%), 50 to 54, with 7 (4,60%), 55 to 59 years, 2 (1,31%), 60 to 64 years, 3 (1,97%), 65 to 69, were 2 cases (1,31%), 70 to 74 years, 1 (0,65%), 75 to 79, with 8 (5,26%) and 80 years and over, with 10 cases (6,57%). As for race / color, 124 (81,57%) declared themselves white, 20 (13,15%) brown, six (3,94%) black, yellow and indigenous one (0,65%) each.

Regarding education, incomplete primary education had 51 cases (33,55%), complete primary education 14 cases (9,21%), incomplete secondary education 20 cases (13,15%), complete secondary education 22 cases (14,47%),

incomplete higher education 4 cases (2,63%), complete higher education 5 (3,28%), illiterate 3 (1,97%), ignored / white and / or 33 cases (21,71%).

Concerning the occupations / professions of the notified individuals, 32 cases (21,05%) were students, 26 cases (17,10%) housewives, 21 cases (13,81%) retired, 12 cases (7,89%) farmers, 10 cases (6,57%) unemployed and 17 cases (11,18%) ignored. The remaining percentages were distributed to different professions, totaling 34 cases (22,36%), with emphasis on: administrative assistant; Pharmacy attendant; intern; salesperson / logist; production assistant; teacher; machine operator; joiner; bricklayer; clerk; autonomous; pet-shop attendant and hairdresser.

Regarding the place of exposure, 132 (86,84%) of the poisonings occurred at home. Seven cases (4,60%) in the work environment, six (3,94%) in an external environment, four (2,63%) in other places, two (1,31%) in health services and one (0,65%) ignored/white.

Table 1 presents data on toxicological agents, according to the year of distribution.

The years 2017 and 2018 had the highest number of intoxications, with 43

(28,28%) 45 (29,60%) respectively. Regarding the toxicological agent, 98 drug poisoning predominated (64,47%), with no significant variance between the other toxicological agents.

As for the active ingredients of the agents, 127 active ingredients were counted, which were organized into therapeutic classes according to the notification form, with predominance of anticoagulants that had 42 (27,63%) cases, followed by benzodiazepines with 24 (15,78%), antidepressants, 18 (11,84%), anticonvulsants 16 (10,52%) and anti-inflammatory drugs 12 (7,89%) cases.

The predominant type of exposure was acute / single, totaling 117 (76,97%) followed by acute / repeated with 24 (15,78%) cases. The chronic type had six (3,94%) cases, while acute sub-chronic totaled three (1,97%), ignored / white two (1,31%). Regarding the contamination vehicle, the suicide attempt prevailed in 71 (46,71%) cases, accidental use presented 36 (23,68%) cases, followed by therapeutic use intoxication 17 (11,18%). Administration error and abuse both presented seven (4,60%) cases each, habitual use configured six (3,94%), self-medication had three (1,97%) cases, medical prescription two (1,31%), violence / homicide, attempted abortion and food intake presented one case for each (0,65%). Regarding the evolution of the case, this study showed that the cure without sequelae predominated with 128 (84,21%) cases, 12 (7,89%) died, with death due to intoxication or death due to other causes, three cases (1,97%) were ignored / white, five (3,28%) had segment loss and four (2,63%) had a cure with sequelae.

DISCUSSION

When related to age, the study had a disagreement between the age groups when compared to other studies, which highlighted the ages between 20 and 40 years, a percentage of 30,3 to 54,1% for

TABLE 1 - Occurrence of exogenous intoxication as to the type of toxicological agent of the exposure, from June 2015 to June 2019. Cascavel / PR. 2019.

AGENTE TÓXICO	2015	2016	2017	2018	2019	TOTAL
Medicamento	8	16	26	34	14	98
Agrotóxico agrícola	3	1	3	2	2	11
Agrotóxico doméstico	1	3	0	0	0	4
Raticida	1	0	2	2	0	5
Produto veterinário	0	1	1	0	0	2
Produto uso domiciliar	2	0	1	1	1	5
Cosmético	1	0	0	0	0	1
Produto químico	2	2	4	5	1	14
Droga de abuso	0	0	4	1	3	8
Alimento e bebida	0	0	0	0	1	1
IGN/BRA	0	0	2	0	1	3
TOTAL	18	23	43	45	23	152

Source: SINAN/2019.

this age group, in which people aged over 40 totaled 40,5% of notifications and in another study the ages that prevailed between 16 to 25 years old with a percentage of 32%. (1,2-5,5-8) It can be seen that in this study this age group prevailed, but a large number is also observed for ages between one to four years 17 (11,18%).

The study showed that suicide attempt was prevalent among individuals aged 20 to 34 years. Similar data was found in a multicenter study conducted in Switzerland, which reported that suicide attempts by poisoning were more common among adolescents and young adults.⁽⁹⁾

Another study that analyzed the cases of acute poisoning by pesticides in Brazil, over a period of five years, showed the ages between 20 and 39 years old presented 20.630 intoxications, with 46% of the notifications.⁽¹¹⁾

As for race / color, few studies bring this variable into their analysis. One study showed this variable, in which 6.821 (66,4%) of its cases were in people declared to be brown.⁽⁸⁾ Retrospective studies using medical records, records or forms previously filled out by different employees, mainly by third parties to the service, have a bias related to filling in, loss of relevant information and sometimes filling in the fields was ignored.

Faced with the presence of fields with the ignored variable, the possibility of negligence in filling in the data or incomplete provision of information by the patients is questioned.⁽⁵⁾

The predominance of residence as a place of exposure appears in most studies as the main place of exposure ranging from 56,8 to 85,7%, data that corroborate with the study in question. In most cases, they were located in a predominantly urban geographic location, stated in one of the studies by a percentage of 1.046 (64%) of the cases^(2-5-11,12).

This study shows that the epidemiological data on the anticoagulant causal toxicological agent is an isolated data,



Another study that analyzed the cases of acute poisoning by pesticides in Brazil, over a period of five years, showed the ages between 20 and 39 years old presented 20.630 intoxications, with 46% of the notifications.



evidenced in other studies that Benzodiazepines predominate. A study carried out in the period from 1998 to 2011 analyzed drug poisonings, with a total of 16.774 accidents due to ingestion of this agent, with the percentage of 32,5% of calls for exogenous poisoning in the period.⁽¹³⁾ This study characterized the drug class, with benzodiazepines being the major causative agent of exogenous intoxication with a percentage of (17,2%) of intoxications.⁽¹⁴⁾

A study carried out between 2006 and 2011 in an Iranian hospital registered 108,265 cases of drug poisoning. When the data regarding the intoxicant were analyzed, antiepileptics, sedative-hypnotics and antiparkinsonian drugs had prevalence in 24.185 (22,3%) of the identified medications.⁽¹⁵⁾

In most cases, medication intake is related to suicidal thinking. In the follow-up to 153 cases of exogenous intoxication between 2009 and 2011 in a highly complex hospital in Turkey, it showed that 135 (71,2%) were due to medication ingestion and 144 (94,1%) were due to suicide attempt⁽¹⁶⁾. The data are similar to when compared to the present study, which showed the attempted suicide in 71 (46,71%) of the cases. In Brazil, suicide data increased between 2007 and 2016. When 106.374 deaths were registered as a result of suicide, due to drug intoxication responsible for 18% of deaths.⁽¹⁷⁾

Regarding the causal agent, 13,322 (7,3%) were on medication, Benzodiazepines 4.344 (83,2%) had a prevalence among pharmacological classes, among them Diazepam 2.374 (45,5%). In this study, therapeutic use represented 44% of intoxications. Accidental use showed 36 (23,68%) followed by intoxication by therapeutic use 17 (11,18%).

In a five-year study, it characterized a total of 277 victims of exogenous intoxication, 215 (77,6%) had acute intoxication as the main type of exposure, followed by 34 (12,3%) repeated acute.⁽¹⁸⁾ These data corroborate those found in this study, with

the acute single 117 (76,97%) cases and the repeated 24 (15,78%).

Data from another study regarding the outcome of cases, in two years showed that 86 (72,8%) had a cure without sequelae and 14 (11,8%) died due to poisoning⁽¹⁹⁾. The present study found 84,21% of the total sample surveyed, evolved to cure without sequelae and 7,89% evolved to death. The mortality of intoxicated people was low, these data are also presented in a study that analyzed the outcome of the cases of intoxication, ranging from 0 to 1,4% of the patients admitted with the diagnosis of exogenous intoxication.⁽²⁰⁾

CONCLUSION

The study had as a relevant finding that young adults between the ages of 20 to 34 years old, mainly females, predominated in notifications of exogenous intoxication, concentrated in people with incomplete schooling. Social determinants, which expose victims to developing psychological problems, associated with physical determinants that are influenced in most cases by the end of quality of life conditions and economic factors, enable victims to commit suicide.

Underreporting is still a problem that permeates studies of epidemiological

characteristics, since the absence of information can contribute to unrepresentative results. Notifying cases of health problems will build indicators that will serve as a basis for planning actions, which will contribute to the implementation of measures to improve health indicators.

It is suggested the development of new epidemiological studies about exogenous intoxications in other realities, in order to consolidate information evidenced in practice, which can strengthen public policies in the face of this problem.

It is expected that new studies can be developed in other scenarios, so that the results are added to those found in this study. 🐦

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