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INITIAL MANAGEMENT STRATEGIES FOR THE MOST FREQUENT INTOXICATIONS IN EMERGENCY SERVICES IN BRAZIL: A NARRATIVE REVIEW

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Abstract: Introduction: Poisoning is a pathological condition resulting from exposure to toxic substances. In the case of acute poisoning, exposure occurs within 24 hours, requiring rapid intervention. **Objective: To** identify the most frequent intoxications in emergency departments in Brazil, indicating the appropriate course of action. **Method:** This is a narrative literature review. It included 25 articles published between 1991 and 2025, as well as the use of epidemiological sources. The data was collected using the PubMed, SciELO, LILACS and CAPES Periodicals Portal databases. **Results:** There was a predominance of drug poisoning, followed by drugs of abuse and household products. In Brazil, benzodiazepines are the most frequently involved psychotropic drugs. The antidote, flumazenil, is controversial due to its association with serious adverse events. Other gastrointestinal decontamination measures are not recommended. Alcohol is the main etiologic agent of intoxication by drugs of abuse. The management of ethyl intoxication should begin with the systematic ABCDE approach. Laboratory tests play a crucial role in the management of poisoning by caustics, although their correlation with the severity of the lesions is limited. The treatment of poisoning by caustic products should be directed according to the extent of the lesions and the mode of exposure. **Conclusion:** Exogenous poisoning represents a significant demand on emergency services in Brazil. Given the magnitude of the problem, it is essential to invest in the continuous training of health professionals.

Keywords: Intoxication; Substance Use Disorders; Emergency Medical Services; Drug Overdose; Clinical Epidemiology.

INTRODUCTION

Intoxication is a pathological condition resulting from exposure to toxic substances, which can occur by various routes, such as ingestion, inhalation or skin absorption. This exposure, whether accidental or intentional, can lead to biochemical alterations and organic dysfunctions of varying intensity. In the case of acute poisoning, exposure to the toxic agent occurs within a period of up to 24 hours, requiring rapid and effective intervention to reduce health risks (1).

In recent years, the number of emergency room visits for poisoning cases has increased significantly, driven by greater access to chemical agents, medicines and environmental pollutants. In 2024, 143,190 cases of exogenous poisoning were recorded in Brazil, of which 56% were associated with the use of medicines, 11% with drugs of abuse and 4.4% with household products. Suicide was the main cause, accounting for 49.8% of cases. Medicines continue to be the main cause of poisoning in the country, leading the SINTOX statistics since 1994. The classes most frequently involved include benzodiazepines, antipyretics, antidepressants and anti-inflammatories (2,3).

The clinical presentation of intoxication in the emergency room varies according to the substance involved. In the case of benzodiazepine intoxication, the most common symptoms include drowsiness, diplopia, dysarthria, ataxia and cognitive deficit. Deep or cyclical coma is rare and usually indicates the coingestion of other substances (4). As for intoxication by drugs of abuse, the manifestations depend on the substance consumed, such as alcohol, opioids, stimulants or hallucinogens. Alcohol intoxication, for example, can cause dehydration, eye changes and, in advanced stages, obnubilation, coma, convulsions and terminal apnea (5). Poisoning by household products is more common in children, accou-

nting for 52% of cases of accidental poisoning, especially exposure to caustic materials, which can cause oral ulcers, chest pain and severe esophageal lesions (6).

Treatment of poisoning begins with supportive care, assessment of organ function and identification of known or suspected toxins. In cases of intentional exposure or suicide attempts, the ingestion of multiple substances should be considered. Provisional diagnosis is usually based on physical examination and simple laboratory tests. Clinical support, with emphasis on airway management, oxygenation and circulation, is the basis of treatment (7).

Acute poisoning represents a significant challenge for health services, especially in emergency rooms. Rapid identification of the toxic agent and immediate implementation of diagnostic and therapeutic measures are essential to prevent serious outcomes, including fatal cases (1). In view of this, understanding the epidemiological profile of these occurrences is essential for health professionals to adopt agile and effective interventions, improving clinical prognoses (8).

The aim of this study is to identify the most common poisoning cases in emergency departments in Brazil, indicating the appropriate approach to the patient's initial management.

METHOD

This is a narrative review of the literature whose aim was to characterize the most frequent intoxications in the emergency department and their appropriate management. It included 25 scientific articles published between 1991 and 2025, in Portuguese, English and Spanish, and used epidemiological data sources such as DATASUS and the National Toxic-Pharmacological Information System (SINITOX). Data was collected between March and April 2025 through a structured search in four databases: PubMed, SciELO, LILACS and the CAPES Journals Portal. The inclusion criteria included original studies, systematic reviews, meta-analyses and clinical guidelines that covered the central theme of the proposed objective. Articles that were not related to the topic addressed in the objective were excluded. The descriptors used for the search were selected based on standardized terms from the Medical Subject Headings (MeSH) and Health Sciences Descriptors (DeCS), namely: "Poisoning", "Substance-Related Disorders", "Emergency Medical Services", "Drug Overdose", "Caustics", "Toxicity", "Burns, Chemical" and "Clinical Epidemiology", with their respective versions in Portuguese and Spanish.

RESULTS

EPIDEMIOLOGY AND SCREENING

Analysis of data from DATASUS reveals a significant epidemiological panorama of exogenous poisoning in Brazil. Between 2019 and 2024, 1,038,856 cases were reported, of which 0.73% died and 1.56% resulted in permanent sequelae after treatment. There was a predominance of drug poisoning (55.9%), followed by drugs of abuse (12.24%) and household products (4.70%), categories which, as well as being more frequent, also had the highest mortality rates (**Table 1**) [2].

INITIAL PATIENT SCREENING AND ASSESSMENT

In the context of acute intoxication, the time interval between exposure to the toxic agent and the start of medical care has a direct correlation with clinical outcomes, especially with mortality. Evidence indicates that delays in starting intervention are associated with a significant increase in the risk of death, highlighting the importance of a rapid and effective response in the management of these cases [10]. In this context, the importance of

Toxic Agent	Ign/ white	Cure without sequelae	Healing with sequelae	Death from exogenous intoxication	Death from another cause	Loss to follow-up	Total
Ign/White	43362	39489	935	546	174	1057	85563
Medicines	103745	451560	6857	2738	1219	14621	580740
Agricultural pesticides	4095	21027	508	774	83	569	27056
Domestic pesticides	1776	9720	153	104	16	240	12009
Agrotoxics public health	540	1556	39	13	6	12	2166
Rat poison	6424	21239	422	578	56	834	29553
Veterinary product	1172	5744	95	73	11	144	7239
Product for home use	7319	39877	671	175	38	832	48912
Cosmetics	2338	7873	137	21	10	835	11214
Chemicals	4481	18535	503	266	43	445	242736
Metal	871	1390	219	11	9	42	2542
Drugs of abuse	24061	91118	4871	1689	706	4714	127159
Toxic plant	679	4962	58	17	3	76	5795
Food and drink	7960	37596	714	113	136	588	47107
Other	5619	20357	426	421	110	595	27528
Total	214442	772043	16608	7539	2620	25604	1038856

Table 1: Notifications by Evolution according to Toxic Agent Period: 2019-2024

Source: Adapted from Ministry of Health/SVSA - Notifiable Diseases Information System - Sinan Net

early identification of intoxication cases is highlighted, based on an assessment of the clinical presentation and the available anamnesis. Screening, therefore, represents a fundamental stage in initial patient care. For this stage to be effective, it is essential to adopt strategies that encourage both the standardization of protocols and the appropriate structural organization of health services, with a view to obtaining more favourable clinical outcomes [9].

Also during the screening phase, the patient's vital signs and general clinical condition are assessed, and this information is integrated into the toxicological anamnesis. Even if it is directed, the clinical history plays a central role in understanding the poisoning situation, allowing the identification of possible causative agents and estimating the severity of the case. The effectiveness of this process depends crucially on efficient communication between hospital staff, pre-hospital care services and other relevant sources of information, such as family members, companions or witnesses. Elements such as the environmental context in which the patient was found, the presence of substances or drugs in the area, occupation with potential exposure to toxic agents (such as pesticides or inhalant solvents), as well as the psychological state - especially in cases suggestive of attempted self-extermination - are decisive in guiding the initial approach and the direction of treatment [11].

Given the high incidence of exogenous poisoning in Brazil, the initial management of exogenous poisoning depends on a systematic approach, which includes stabilizing the patient, assessing risk and specific interventions based on the type of substance ingested and the time elapsed since exposure. Initial stabilization focuses on maintaining the airway, breathing, circulation, level of consciousness and exposure [12].

Assessment of the airway, its patency, ability to eliminate secretions and protection are priorities. It may be necessary to establish a definitive artificial airway in individuals with inadequate ventilation and consequent respiratory failure [13]. Checking circulation is the

next step, including assessing hemodynamic status. In cases of intoxication, hypotensive individuals do not usually have real hypovolemia; therefore, hypotension should initially be corrected with crystalloid fluids, administered with caution to avoid water overload [14].

Analysis of the patient's level of consciousness and complete exposure allows them to be classified according to one of the main toxic syndromes, as well as helping to identify the mechanism of contamination. For example, the presence of perforations in the cubital fossa may indicate intravenous exposure; skin lesions may suggest dermal contact with toxic substances; and flared nostrils are indicative of carbon monoxide (CO) poisoning in individuals with inhalation injuries [15].

MANAGEMENT OF PATIENTS WITH DRUG POISONING

Drug poisoning occurs predominantly in three clinical contexts: accidental administration, attempted self-extermination and inappropriate use of drugs. Among the most frequently involved agents, psychotropic drugs stand out, both for their high prevalence of use and for their high potential to cause harm, due to their direct action on the central nervous system. Easy access to these drugs is common among patients being treated for psychiatric disorders such as anxiety, depression and epilepsy [16].

In the absence of precise information on the pharmacological agent involved in the intoxication, the identification of neurotoxic syndromes becomes an essential strategy in the process of diagnosis and clinical management. These syndromes function as diagnostic syndromic landmarks, since they are characterized by standardized clinical manifestations associated with specific groups of chemical substances. This approach allows for the implementation of targeted and potentially more effective therapeutic approaches. Each syndrome includes substances with similar mechanisms of action and pathophysiological effects, thus justifying convergent clinical interventions based on previously established protocols [16].

In Brazil, benzodiazepines are the psychotropic drugs most frequently involved in cases of intoxication [2, 3, 16]. Clinically, this condition manifests itself as a sedative-hypnotic syndrome, due to the action of benzodiazepines on GABA A receptors - inhibitory receptors in the central nervous system - which leads to symptoms such as drowsiness, diplopia, dysarthria, ataxia, intellectual impairment and, in more serious cases (although rare), coma. Once the diagnosis of benzodiazepine intoxication has been established, laboratory measurement of the drug's plasma concentration is not carried out, as this measure is not related to clinical toxicity, nor is it useful for prognosis [17].

Poisoning by isolated benzodiazepines generally has a low lethality rate, but mortality can increase significantly when there is coingestion with other substances. The specific antidote, flumazenil, acts as a GABA A receptor antagonist, reversing the effects of benzodiazepines. However, its use is controversial due to its association with serious adverse events such as ventricular arrhythmias, tachycardia, convulsions and, in rare cases, death. Furthermore, in situations of mixed intoxication, especially with pro-convulsant drugs, benzodiazepines can exert a protective effect, making the administration of flumazenil potentially harmful. In view of this, its indication should be carefully evaluated and restricted to specific cases, such as comatose patients or those with severe respiratory failure attributable exclusively to benzodiazepines, in which the benefits of the antidote may outweigh the risks [18].

Other gastrointestinal decontamination measures, such as the use of activated charcoal and gastric lavage, are not recommended in the management of benzodiazepine poisoning. These methods present an increased risk of complications, especially aspiration of gastric contents, which can result in respiratory compromise and the need for advanced airway support. Considering that benzodiazepines alone rarely cause severe intoxication, these interventions do not offer clinical benefits that justify their risks [19].

MANAGEMENT OF PATIENTS WITH INTOXICATION BY DRUGS OF ABUSE

Alcohol is the main etiological agent of intoxication by drugs of abuse. In this context, there is a higher prevalence among males, predominantly in the 20 to 34 age group [20]. Acute alcohol intoxication presents a variable clinical spectrum, conditioned by the amount ingested, duration of consumption, individual tolerance and the presence of comorbidities or concomitant use of other psychoactive substances. In mild to moderate cases, clinical manifestations include euphoria, disinhibition, slurred speech, ataxia, nausea and drowsiness. In more severe cases, there may be a lowered level of consciousness, hypothermia, bradypnea, hypotension, convulsions and hypoglycemia - the latter especially frequent in chronic alcoholics [21].

The association with other substances potentiates toxicity and can intensify or mask important clinical signs, which makes initial assessment and management difficult. Among the complications associated with chronic alcohol use are Wernicke's encephalopathy, electrolyte disturbances and alcohol withdrawal syndrome, which requires specialized attention. Thus, the diagnosis of alcohol intoxication is largely clinical, based on a detailed anamnesis and careful physical assessment [21].

The management of acute ethyl intoxication in the emergency room should begin with the systematic ABCDE approach, with an emphasis on airway protection, since the main life-threatening complication is respiratory depression. After ensuring hemodynamic and ventilatory stability, an initial neurological and metabolic assessment is carried out. Monitoring capillary blood glucose is essential, as alcoholic patients often experience hypoglycemia due to the depletion of hepatic glycogen reserves. In these cases, prior administration of thiamine before glucose infusion is mandatory in order to avoid Wernicke's encephalopathy [22].

Laboratory evaluation is essential when dealing with patients with ethyl intoxication, especially in emergency contexts that require quick decisions. Blood ethanol levels are the standard test for estimating blood alcohol content, although their levels do not always reflect clinical severity or availability. Complementary tests, such as blood glucose and serum electrolytes (sodium, potassium and magnesium), are recommended due to the frequency of metabolic alterations. Analysis of liver function and mean corpuscular volume (MCV) can indicate chronic alcohol consumption. The integration of clinical and laboratory data is indispensable, since no single parameter is sufficient to define the complexity of the condition [23].

Hydro-electrolyte support is essential in the management of alcohol intoxication, due to the diuretic effect of ethanol and the risk of dehydration, and replacement with crystalloids is indicated. Caution should be exercised in patients with alcoholic cardiomyopathy in order to avoid volume overload. Correction of electrolyte disturbances, such as hyponatremia, should be done gradually to prevent neurological complications, such as central myelinolysis [21]. Nausea and vomiting can be treated with anti-emetics, but persistent symptoms require imaging investigation.

Neurological signs, such as ataxia and altered level of consciousness, require frequent reassessment due to the possibility of serious differential diagnoses [22].

Cases of agitation or violent behavior may require sedation with antipsychotics such as droperidol or haloperidol, always observing possible drug interactions with alcohol. Depending on the severity of the condition and associated complications, such as alcoholic hepatitis, dysrhythmias or Wernicke's encephalopathy, hospitalization may be necessary for monitoring and intensive treatment [22].

MANAGEMENT OF PATIENTS WITH POISONING FROM PRODUCTS

Poisoning by household products represents a significant public health risk, both in Brazil and globally, with contamination by caustic substances being the most prevalent. Exposure to caustic compounds can cause local lesions and present potential systemic toxicity. The pattern of exposure follows a bimodal distribution, predominantly affecting children aged 1 to 5, due to accidental exposure, and adults, usually as a result of occupational accidents or suicide attempts. In adults, burns tend to be more severe, especially when there is intentional ingestion, due to the greater volume of substance ingested [24].

With regard to the clinical signs of poisoning by caustic substances, it is crucial to highlight the substantial damage that these substances can cause to the patient's health, including esophageal perforation, stenosis and necrosis, which can even affect the tracheobronchial tree. Depending on the route of exposure, these agents can cause gastrointestinal, dermal and ocular burns. The severity of the injury is directly related to the type, concentration and quantity of the substance involved, with acidic and alkaline compounds having high toxicity. Alkaline substances, in particular, tend to cause more severe lesions in the esophagus than acids, as they penetrate the tissues quickly, causing necrosis by liquefaction [24].

Laboratory tests play a crucial role in the management of caustic poisoning, although their correlation with the severity of the lesions is limited. They are mostly used to monitor clinical progress and guide therapeutic strategies. The elevated white blood cell count, increased levels of C-reactive protein, associated with advanced age and the presence of esophageal ulcers, have been correlated with a higher mortality rate in adults. In addition, an arterial pH of less than 7.22 or a base excess of less than 12 are indicative of serious esophageal lesions, suggesting the need for emergency surgical intervention [25].

Plain chest X-rays are widely used in the assessment of esophageal perforations, allowing for the detection of air in the mediastinum, as well as in the identification of gastric perforations, evidenced by the presence of free air under the diaphragm. In addition, in cases of clinical suspicion of perforation, water-soluble contrast can be used. Computed tomography, on the other hand, stands out as a promising tool in the initial assessment of lesions induced by gastric substances, as it is a non-invasive procedure. It offers a more precise analysis of the involvement of the esophageal and gastric walls, as well as a better assessment of the extent of necrosis, compared to endoscopy. Tomography has proved particularly effective in identifying imminent or already established gastric perforations [26].

Endoscopy is a crucial procedure both for assessing prognosis and for guiding treatment in cases of caustic poisoning, since the degree of esophageal damage identified during the examination serves as a reliable indicator of possible systemic complications and risk of mortality. However, this test has some contraindications, such as in cases of radiological suspicion of perforation or when there are burns in the supraglottic or epiglottic region with

edema, conditions that may suggest a risk of airway obstruction, which would require endotracheal intubation or tracheostomy [26].

The treatment of poisoning by caustic products should be directed according to the extent of the esophageal lesions and the mode of exposure. Signs of shock, coma, hydroelectrolytic and acid-base disorders, as well as organ perforation and airway obstruction should be taken into account. Supportive treatment should be considered along with symptomatic treatment, such as analgesics, nasogastric tubes (NGS), antibiotic therapy and H2 blockers [27].

COMPLICATIONS AND FOLLOW-UP CARE

Accurate diagnosis of all cases of poisoning is essential not only to avoid inappropriate interventions, but also to carefully guide prognostic assessment strategies, decontamination methods and measures aimed at eliminating the toxic agent. Correct diagnosis, in this context, is central to the clinical management of intoxicated patients, reducing risks, rationalizing initial procedures and improving clinical outcomes. On the other hand, in situations of diagnostic failure, treatment becomes ineffective, since control measures are specific and depend directly on the pathophysiology triggered by the substance involved [12]. This inadequate treatment can perpetuate the intoxication, worsening the patient's clinical condition and favoring the occurrence of complications, irreversible sequelae or even death [10]. To avoid inappropriate conduct, the regional poisoning center should be contacted in order to support the protocol to be adopted, reducing the chances of harm [12].

Serious poisoning may require prolonged observation, with the possibility of hospitalization for continuous monitoring of clinical progress. In cases of intentional intoxication with suicidal intent, it is essential to refer the patient for specialized psychiatric assessment and follow-up. On the other hand, in situations where intoxication is the result of the voluntary ingestion of psychoactive substances associated with abusive use, it is advisable to refer the patient for specific monitoring of disorders related to chemical dependency [12].

CONCLUSION

Exogenous intoxications represent a significant demand for emergency care services in Brazil, due to their high incidence, the diversity of agents involved and the significant risk of serious outcomes. The epidemiological data analyzed shows a predominance of drug poisonings, followed by drugs of abuse and household products, with a high frequency of clinical complications and mortality associated with these groups.

Early recognition of intoxication and the application of standardized procedures are fundamental to reducing morbidity and mortality. Screening guides initial management, prioritizing clinical stabilization and identification of the toxic agent. These include the selective use of flumazenil in benzodiazepine intoxications, the administration of thiamine before glucose in cases of alcohol intoxication and the performance of imaging tests and endoscopy in cases of exposure to caustics. These measures, when properly indicated, favor more effective conduct and reduce complications. Cases of attempted self-extermination or substance abuse require psychiatric assessment and multi-professional follow-up.

Given the magnitude of the problem, it is essential to invest in the continuous training of health professionals, strengthen toxicological information centers and improve prevention strategies. A rapid, coordinated and evidence-based clinical response is the main pillar for mitigating the impact of exogenous poisoning on emergency services and improving the clinical outcomes of these patients.

REFERENCES

1. Epidemiologia das intoxicações agudas: aspectos clínicos e implicações para o pronto-atendimento. Rev Bras Clin Med. 2021;19(2):75-82. Disponível em: https://www.rbcm.org.br/article/epidemiologia-intoxicacoes-agudas-aspectos-clinicos-implicacoes-pronto-atendimento/. Acesso em: 4 abr. 2025.

2. Informações de saúde: Tabnet [Internet]. Brasília: Ministério da Saúde; [citado em 4 abr. 2025]. Disponível em: https://datasus.saude.gov.br/informacoes-de-saude-tabnet/

3. Sistema Nacional de Informações Tóxico-Farmacológicas [Internet]. [citado em 4 abr. 2025]. Disponível em: https://www.toxicanalise.org.br/

4. The clinical toxicology of benzodiazepines. J Pediatr. 1991;118(5 Pt 1):845-50. doi:10.1016/S0022-3476(05)82263-0.

5. Clinical and forensic aspects of acute alcohol intoxication: a review. J Forensic Leg Med. 2019;67:12-7. doi:10.1016/j.jflm.2019.101875.

6. Chemical ingestion-related emergency visits and outcomes in children: a nationwide study. Pediatr Neonatol. 2021;62(6):601-7. doi:10.1016/j.pedneo.2021.07.003.

7. Clinical approach to acute poisoning: key principles for emergency physicians. Am J Emerg Med. 2023;67:95-102. doi:10.1016/j.ajem.2022.11.046.

8. Intoxicações exógenas e o desafio no atendimento de urgência: análise de condutas e resultados clínicos. Rev Bras Med Urg Emerg. 2017;15(3):136-41.

9. Silva BCR, Ribeiro NB, Souza LO, Dourado MR, Maciel FS. Protocolos de triagem avançada no serviço de emergência: revisão sistemática e metanálise. Rev Esc Enferm USP. 2022;56:e20210351. doi:10.1590/1518-8345.5479.3511.

10. Telayneh AT, Biresaw MS, Mesfin YM. Mortality of acute poisoning and its predictors in Ethiopia: a systematic review and meta-analysis. Heliyon. 2024;10(4):e24051. PMID:38681614.

11. Fortes AFA, Azevedo EC, Ribeiro PKL, Machado SR. Intoxicações exógenas: perfil dos pacientes atendidos em um pronto atendimento. Rev Eletr Gestão Saúde. 2016;7(1):211-30. Disponível em: https://periodicos.unb.br/index.php/rgs/article/view/3405/3091.

12. Erickson TB, Thompson TM, Lu JJ. The approach to the patient with an unknown overdose. Emerg Med Clin North Am. 2007;25(2):249-81. doi:10.1016/j.emc.2007.02.004. PMID:17482020.

13. Ornillo C, Harbord N. Fundaments of toxicology – approach to the poisoned patient. Adv Chronic Kidney Dis. 2020;27(1):5-10. doi:10.1053/j.ackd.2019.12.001. PMID:32147001.

14. Lavonas EJ, et al. 2023 American Heart Association focused update on the management of patients with cardiac arrest or life-threatening toxicity due to poisoning. Circulation. 2023;148(16):e149-e184. doi:10.1161/CIR.0000000000001161. PMID:37721023.

15. Santos D, Soares FC. Perfil epidemiológico das intoxicações medicamentosas atendidas por um centro de informações e assistência toxicológica. Int J Dev Res. 2019;9(12):32566-70. Disponível em: https://www.journalijdr.com/sites/default/files/issue-pdf/17661.pdf.

16. Nóbrega HOS, Costa AMP, Mariz SR, Fook SML. Intoxicações por medicamentos: uma revisão sistemática com abordagem nas síndromes tóxicas. Rev Saúde Ciênc Online. 2015;4(2):109-19. Disponível em: https://rsc.revistas.ufcg.edu.br/index.php/rsc/article/view/256.

17. Gaudreault P, Guay J, Thivierge RL, Verdy I. Benzodiazepine poisoning: clinical and pharmacological considerations and treatment. Drug Saf. 1991;6(4):247-65. PMID:1888441.

18. Mowry JB, Spyker DA, Brooks DE, McMillan N, Schauben JL. 2014 annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 32nd annual report. Basic Clin Pharmacol Toxicol. 2015;117(2):95-248. doi:10.1111/bcpt.12434.

19. Vale JA, Kulig K. Position paper: gastric lavage. QJM. 2004;97(9):493-5. doi:10.1093/qjmed/hci102.

20. Silva ALV, Brito ELB, Toledo OR, Suchara EA. Intoxicações por etanol: registros de um hospital público. Rev Med Saúde Brasília. 2015.

21. Fiore PA, et al. Alcohol intoxication management: a literature review. Clin Ter. 2022;173(3):229-34.

22. Lank PM, Pines E, Mycyk MB. Alcohol toxicity. Treasure Island (FL): StatPearls Publishing; 2023 Jan.

23. Conigrave KM, Davies P, Haber PS. Detection of alcohol consumption in the emergency department: laboratory tests and clinical assessment. Med J Aust. 2003.

24. Wightman RS, Leia KB, Hoffman RS. Gerenciamento baseado em evidências de exposições cáusticas no departamento de emergência. Clin Toxicol (Phila). 2016;54(5):420-6. PMID:27074641.

25. Arici MA, et al. Avaliação de exposições a cáusticos e detergentes domésticos em um serviço de emergência. Clin Toxicol (Phila). 2011;49(6):449-54. PMID:21665922.

26. Contini S, Scarpignato C. Caustic injury of the upper gastrointestinal tract: a comprehensive review. World J Gastroenterol. 2013;19(25):3918-30. doi:10.3748/wjg.v19.i25.3918. PMID:23840136; PMCID:PMC3703178.

27. Rodrigues OR, Oliveira MR. Conduta terapêutica nos casos de ingestão cáustica. Medicina (Ribeirão Preto). 1996;29(3):271-82.