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The role of the nurse in the face of snakebite victims in pre-hospital and intra-hospital accidents

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Rafael de Carvalho dos Santos
Master in Local Development from the Augusto Motta University. Specialist in Teaching in Nursing by Candido Mendes University, Specialist in Urgency and Emergency by Uninter, specialist in intensive care by Uninter, specialist in Cardiology and Hemodynamics by Unyleya, Professor by Faculdade Bezerra de Araújo - FABA
E-mail: santoscbmerj@hotmail.com
ORCID: 0000-0002-4219-0151

Daniel de Oliveira dos Santos
Nursing student at Faculdade Bezerra de Araújo
E-mail: danieloliveiracg@gmail.com
ORCID: 0009-0009-4120-9744

Maria Fernanda Albuquerque Ferreira da Silva
Nursing student, Faculdade Bezerra de Araújo
E-mail: naandaferreiraa@hotmail.com
ORCID: 0009-0009-8449-5656

Maylla Monteiro da Silva
Nursing Student, Faculdade Bezerra de Araújo
E-mail: maylla876@hotmail.com
ORCID: 0009-0001-9257-2270

ABSTRACT
Objective: to expose the incidence of ophidian accidents, as well as the emergency, pre-hospital and in-hospital actions. Method: The search was conducted in the following databases: Scientific Electronic Library Online (SciELo), Latin American and Caribbean Literature on Health Sciences (LILACS) and Google Scholar. Results: The sample of the present work encompasses 11 articles with common objectives, such objectives are constituted in the intention of identifying the possible contributions of the professional in the scope of nursing for patients victims of ophidian accidents, where it was exposed that this assumes a role of great relevance in the care and assistance. Final considerations: it was found that nurses in cases of ophidian accidents must tranquilize the patient, keep the site of the bite elevated, keep the individual lying down, perform a physical examination and analyze vital functions. Serotherapy, with infusion of the antidote serum, is the most effective treatment in these cases, and the nurse must also constantly monitor the patient and administer medication.

Keywords: Ophidian Accident, Serotherapy, Antiphid serum, Nursing.

1 INTRODUCTION

Snakebite accidents, those caused by snakes have been characterized as a great emblem in public health, based on the assumption that, in addition to the considerable increase and continuity of incidence, they can still be extremely harmful to the victim, reaching fatal in some cases, leading the patient to death (GARROT, 2022).

The effects of snake venom on the human body are varied, ranging from the simplest clinical cases to the most severe. But in general, they can include: pain, edema, diarrhea and nausea, in their simplest cases. However, in their most advanced cases, they can cause effects on kidney functions, including chronic renal failure, muscle paralysis, hemorrhage, reduced blood pressure, thus representing a great risk of leading the individual to death (SOUZA *et al.*, 2021).

In view of the above, in view of this scenario, specialists in human health, especially in the field of nursing, perform a considerable function in the assistance, care and care in the emergency, in

the pre-hospital and intra-hospital. Linked to this, nurses are indispensable for the administration of the drug intravenously, as well as for the monitoring of these patients (BRANDÃO *et al.*, 2019).

Nevertheless, it is necessary to delineate that, the antivenom emerges as one of the main treatments when there is the occurrence of these adverse events with snakes, thus aiming to reduce the risks and effects, from the inhibition of the snake venom (GARROT, 2022).

As a result, taking into account the high number of cases in the country, its negative effects that these can provide to patients, as well as the risks that they are submitted, it is then necessary to allude to this theme, as a means of raising awareness in the community, especially nursing professionals (FUENTES, CASTRO and MARRONI, 2022).

In this sense, a problematizing question arises that guided the present study: What do the current researches about the incidence of snakebite accidents in Rio de Janeiro bring and what is the performance of the nursing professional in these cases? Therefore, to answer the following problem, the general and specific objectives of the work were proposed.

Before the above, the study aimed to expose the incidences of snakebite accidents, as well as the emergency, pre-hospital and intra-hospital actions. Followed by the specific objectives: to demonstrate the rates of snakebite accidents and epidemiological data, to describe the actions of nurses in the emergency, pre-hospital and in-hospital, to cite the indications of antivenom, to outline the characteristics of snakes.

1.1 JUSTIFICATION

It is necessary to emphasize that it is noticeable a significant scarcity in the literature of works that address the role of the nurse in the face of snakebite accidents, however, this problem is still neglected, thus emerging the indispensability of discussing the theme (BRANDÃO *et al.*, 2019).

Thus, the justification of the present research is based on the fact that there are still few publications and works that emphasize how much the nurse assumes a relevant role with regard to providing care to people who are victims of snakebite accidents. In the meantime, research that discusses this emblematic emerges as a viable and favorable context regarding the expansion of understanding about it (GARROT, 2022).

Thus, this analysis is characterized as of great relevance for the population and academic community of nursing. In addition, it is still important for society, considering that, when addressing this theme still little debated, notoriously, more people will be aware of what can or cannot be done in the face of the situation.

2 METHODOLOGY

After establishing the research theme, the theme in question was problematized, and concomitantly the objectives of the research were delimited, and a literature review was carried out, seeking to understand the main aspects related to the role of the nurse in the face of a victim of snakebite accidents in the intra-hospital environment.

The current study refers to an integrative review of the literature in order to investigate how the phenomenon happens, and that seeks to explain a problem from theoretical references published in articles, books, dissertations and theses. Thus, this method aims to substantiate and answer the issues proposed here.

The integrative review followed the respective steps: identification of the emblematic question of the research, identification of relevant studies on the theme, selection of researches, mapping of the data of the analyzed studies, description of the results (TRICCO *et al*., 2018). In addition, it was followed by PRISMA (Integrative Review) analyzing information related to the title, abstract, introduction, method, discussions and conclusions of the study (TRICCO *et al*., 2018).

For data collection, an integrative literature review was carried out, through PRISMA, after reading the abstract, the texts were chosen, and thus, the main results and discussions of these studies were mapped, taking into account particularities such as: year of publication, title, results and conclusions of the study (PETERS *et al.,* 2020), whose data collection instrument was prepared by the main researcher of the research.

To develop the current review, the following research question was constructed: What do current studies about the role of nurses in the face of a victim of snakebite accidents in the intra-hospital environment bring.? The search was performed in the following databases and libraries: Scientific Electronic Library Online (SciELo), Latin American and Caribbean Literature in Health Sciences (LILACS) and Google Scholar.

The following Health Sciences Descriptors (DeCS) were used: Snakes, nurses, snakebite accidents, epidemiological data. All descriptors were crossed using the Boolean operators "and". For the choice of this research we used some analysis criteria, among them it can be emphasized that a careful analysis was made regarding the titles, as well as the abstracts of the publications. Thus, after ascertaining whether that study, in fact, was in line with those with the ophidic incidents, and the nurse's role was made, the complete analysis of the text was made.

The studies that proved interesting for the research were grouped in an excel table and their main results were mapped, so that a discussion of the results and conclusions was then made, comparing them with the results of other authors. The insertion parameters were: analyses published in the period from 2015 to 2023, in the Portuguese or English language, available in the literature. The

exclusion criteria were: studies that were not in line with the theme, repeated and incomplete. To analyze the results, we used the synthesis of each study included in the review, as well as comparisons between the studies.

The extraction of the study was initially performed in an Excell spreadsheet and later a table was constructed containing the following information: title of the work, main author, journal, year of publication, objectives, methodology and results. For the critical evaluation of the selected publications, the structuring of the question that supported the scientific research, the objectives, the methods adopted by the study and, above all, the synthesis of the results were evaluated. After performing the descriptive analysis of the studies, the results were characterized from tables and flowcharts, thus evidencing the main results obtained.

3 ANALYSIS OF STUDIES

In the first bias, it is essential to highlight a conceptualization inherent to snakebite accidents, which are characterized as being every incident caused by venomous snake, being classified in accordance with the ophidian genus and representing one of the main public health problems, occur exceptionally in countries with a tropical climate, as in the case of Brazil (SOUZA *et al.*, 2021).

In general, venomous animals are called those that have certain glands responsible for producing poison (venom) through a mechanism of their own, which can be: teeth, stingers, stinging bristles, nematocyst or spines, which can also hide them in order to facilitate the attack on the prey, in order to provoke, in this way, poisoning (CERON *et al.*, 2019).

Linked to this, there is also the need to mention that, the ophidism is classified based on the genus of snakes, in this sense, what has greater relevance in the epidemiological context of Brazil is relative, that is: *Bothrops*, popularly identified as botropic. This is related to the vast majority of poisoning cases that occur in the country, representing around 90% of these accidents (GARROT, 2022).

In line with this, it is evident that a list of species belongs to the botropic genus, accounting for around thirty, which can be identified throughout the Brazilian territory. In general, they are commonly designated as caiçara, jararaca, comboia, jararacuçu, among others. Usually, they cohabit in places that are considerably humid, or that have an abundance of rodents, such as in cultivated areas or closed forests (CERON *et al.*, 2019).

Still in this context, it is evident how the ophidic poisons are extremely enigmatic, starting from the assumption that they present a little more than 20 distinct substances that act in a mutual way and are constituted by proteins, in addition to the significant and expansive diversity of enzymes, in addition to toxins that are not enzymatic. Perceptibly, it is possible to denote acute inflammation in

patients, as well as hemorrhage and coagulation, these being due to the biochemical constituents presented by snake venom (SOUZA et al., 2021).

In accordance with this, it is then inferred that the intense inflammation caused by poisoning is derived from a series of fragments of the poison, which simultaneously present indirect attributions, in addition to proposing the release of strong autacoids, such as prostacillin, leukotriene, bradykinin, among others. In the meantime, a small portion of poison presents the ability to release a list of substances that can cause inflammatory activity in the body (MEGALE, 2019).

Precisely from the inflammatory process, coagulant activities also begin, which corroborate too much for the so-called thrombi to be formed in the vasculature, thus impacting the blood circulation and contributing to the formation of tissue necrosis, after the worsening of edema (CERON *et al.*, 2019).

Concomitantly, it is noteworthy that the cases of ophidism began to reach exorbitant proportions, a fact that corroborated for the World Health Organization (WHO) to classify these accidents in cases of Neglected Tropical Diseases (NTDs), given that there was no intraspecific program encouraging control, or even prevention (SOUZA et al., 2021).

In view of the above, it is also outlined that venomous snakes have a high capacity for very serious clinical cases, and may even be fatal, because there are many complications that the patient may have as a result of ophidism, some of the main sequelae are the following: renal failure, amputations, motor deficit, psychological and cognitive problems, infections, tetanus, among others. Based on this, hospitalization times can be considerably increased, increasing costs and, above all, providing a considerable increase in morbidity and mortality (COELHO, TAVARES and KORTE, 2021).

In this sense, succinctly, ophidism has stood out mainly due to its high incidence and, mainly, severity of cases. Practically all regions of Brazil report high rates of ophidism, contributing to the fact that it is configured as an emblematic of health, especially when the intervention of accidents with serotherapy is not made early. Through this, the indispensability of alluding to epidemiological data is still emerging (GARROT, 2022).

Undeniably, epidemiological data emerge as a favorable and viable context in terms of alerting about how snakes and snakebite accidents have become a relevant problem in the context of public health in Brazil. Nevertheless, it is still important with regard to having information on the clinical manifestations, complications and consequences of poisoning (COELHO, TAVARES and KORTE, 2021).

According to the Information System of Notifiable Diseases (SINAN), between the years 2010 and 2019, an extremely significant number of notified cases was noticeable, reaching an index of

283,303 cases of snakebite accidents at the national level, of this number, it is possible to list that, the North region recorded a total of 92,417, the Northeast presented 72,344 cases, the Southeast region 64,932, it was also possible to evidence 29,463 cases in the Midwest and 24,147 in the South (SINAN, 2021). The study also listed information on the type of snake incident in the respective cases, in this regard, the genus *Bothrops* was responsible for 42,344 cases.

In this perspective, it becomes relevant to bring considerations about the epidemiological data of Rio de Janeiro, in the year 2021, according to SINAN (2021) 508 total cases of snakebite accidents were recorded, of this number, 363 were caused by the genus *Bothrops*, among the 508 notified cases, 33 were considered severe, 170 classified as moderate, 252 were mild and 53 were ignored.

Parallel to this, it is possible to delineate that there was a reduction compared to the year 2019, which recorded 720 cases of snakebite accidents. In 2020 there were 650 cases, thus representing a decline of the index. Nevertheless, it is still explicit that the severity of the incidents were also decreased, while in 2019 there were 46 cases in serious condition, in 2021 33 were recorded (SINAN, 2021).

To this end, for a better epidemiological analysis of the incidence of snakebite accidents in Rio de Janeiro, table 1 was then constructed explicitly, based on the data published by SINAN from 2012 to 2021, further subdividing according to the genus of the snake.

Table 1: Epidemiological Data of Snakebite Accidents in Rio de Janeiro (2012-2021)

YEAR OF PUBLICATION	**SNAKE GENUS**						
	Bothrops	***Crotalus***	***Lachesis***	***Micrurus***	***No Venomous***	**White/ Ignored**	**Total**
2012	502	20	3	3	10	58	596
2013	465	9	1	2	11	69	557
2014	388	23	1	3	9	73	497
2015	441	19	1	1	7	71	540
2016	418	15	0	4	7	56	500
2017	484	19	3	7	15	66	594
2018	514	23	1	4	27	114	683
2019	525	23	0	5	33	134	720

2020	480	31	1	4	31	103	650
2021	363	15	2	4	21	103	508
Total:	4.580	197	13	37	171	847	5.845

Source: Notifiable Diseases Information System (2021).

From the analysis of the respective epidemiological data, it is visible that, undeniably, *Bothrops* has predominance in the incidence of cases, while the genus *Lachesis* was not so emphatic. Concomitantly, despite declining in 2021, it is essential to discuss these issues and, above all, to take measures that are important to minimize them. In this same bias, it becomes relevant to allude to the role of the nurse in the face of a victim who suffered snakebite accidents and lacks care and intervention in his case (COELHO, TAVARES and KORTE, 2021).

Undeniably, the nursing professional is extremely important in the most varied aspects. Similarly, in cases of snakebite accidents they also assume a relevant role, especially with regard to providing intraspecific assistance (CARVALHO *et al.*, 2023).

Inherent to this, among the most emphatic care that the nurse can provide in cases of snakebite accidents in primary care it is possible to mention the respective ones: in the first bias, it is crucial that the extended site is kept and later analyze the vital signs of the patient, once this is done, it is necessary to seek means to control the pain, it is also essential to keep the place always sanitized, so that the chances of having some infection are minimized, linked to this, it is also necessary to prevent possible bleeding (FUENTES, CASTRO and MARRONI, 2022).

In continuity, the nursing team should notify all cases of snakebite accidents to SINAN, as well as ascertain through this notified case if the neighborhood is also subjected to some risk of ophidism by venomous animal. Nevertheless, nurses can still be important with regard to promoting health education for the community, especially in regions where these cases are more common to happen frequently (CARVALHO *et al.*, 2023).

Parallel to this, it is emphasized that, when analyzing nursing care for snakebite accidents, it is necessary to take into account the pathophysiology, as well as the problems that were noticeable, in addition, it is still necessary to investigate possible reactions that can be developed from the action of the poison, or even by the antivenom drug therapy used in the patient (MACHADO *et al.*, 2018).

Thus, undoubtedly, the nurse triggers an important attribution, especially with regard to providing humanized care, using necessary materials and medications, and is still emphatic in the intervention or replacement of intravenous drug infusion, among other things (FUENTES, CASTRO and MARRONI, 2022).

In view of the above, nursing is responsible for having direct control of the infusion, for obtaining some blood samples to analyze the clotting time, and, due to the fact that the poison affects the renal functions, the monitoring of the patient's renal function must be constantly done (BRANDÃO *et al.*, 2019).

When discussing snakebite accidents, in an undeniable way, the pre-hospital emergency has extreme relevance, given that this is an emergency care service used when the individual is at risk of death (LOPES *et al.*, 2019).

The snakebite accident can be characterized as an emergency situation, based on the assumption that the patient is subjected to the risk of death, inherent to this, it is necessary that the physical examination be performed, analyzing the entire health status of the individual, with the need for the nurse to remain next to the victim for monitoring and assistance in possible intercurrences (MACHADO *et al.*, 2018).

Concomitantly, the nursing team, when performing first aid care, should initially wash where the patient was bitten, and should use only soap and water. In addition, it is essential that the individual is hydrated and always lies down, so that it is taken to the nearest reference unit, if there is a possibility, it is also interesting that the animal is taken to undergo a process of analysis and identification (BRANDÃO *et al.*, 2019).

It is not recommended that the nursing team adopt measures such as: suction of the place where the subject was bitten, tourniquet or application of substances, this is because both methods mentioned, can increase the possibilities of the poison to concentrate in the place and, consequently, allow there to be an infection (CARVALHO *et al.*, 2023).

Thus, in view of the considerations, it is essential that the nurse has a technical preparation to provide patients with adequate care, thus providing nursing care in a correct way, according to the needs presented by the victim, always paying attention to possible more serious clinical conditions (FUENTES, CASTRO and MARRONI, 2022).

With regard to the treatment for cases of snakebite accidents, notoriously, the only one that presents efficacy and viability is the antivenom, which must be specific to each type of snake, it is precisely due to this fact that the importance of taking the animal for identification and, thus, choosing the best serum for the patient is based. Coupled with this, the faster the serotherapy is performed, notoriously, the greater the chances of the patient being free of complications. That said, it should be applied, through the intravenous route, the serum without performing the dilution, the amount is variable, thus depending on the severity of the patient (RANGEL and BERNARDES, 2021).

In general, serums are characterized as being a drug consisting of antibodies produced from animals already immunized, are widely used for the treatment of intoxications arising from the poisons of venomous animals (FUENTES, CASTRO and MARRONI, 2022).

The administration of serotherapy should occur slowly, taking around 20 to 30 minutes, being constantly monitored by the nursing team, since some reactions to the serum may occur in the first hours. It is essential that the venous access of the patient is passed through the process of famacotherapeutic treatment, that is, a pre-medication, thus avoiding hypersensitivity and minimizing discomfort (RANGEL and BERNARDES, 2021).

The main antivenoms are the respective ones: antibotropic (used in cases of patients bitten by jararacas, caiçara, urutu, jararacuçu and cotiara), anticrotalic (accidents with rattlesnake), antilaquetic (for snakebite accidents with surucucu), antielapid (when it occurs with coral), antibotropic-laquético (cotiara, surucucu, jararaca and jararacuçu) (CARVALHO *et al.*, 2023).

In the state of Rio de Janeiro, there should be the referral of the individual for the performance of serotherapy to the respective units: Hospital Municipal Pedro II, Hospital Municipal Lourenço Jorge, Instituo Nacional de Infectologia –INI/FIOCRUZ (PREFEITURA RIO, 2022).

4 RESULTS AND DISCUSSIONS

In the first bias, it is essential to highlight a conceptualization inherent to snakebite accidents, which are characterized as being every incident caused by venomous snake, being classified in accordance with the ophidic genus and representing one of the main public health problems, occur exceptionally in countries with a tropical climate, as in the case of Brazil (SOUZA *et al.*, 2021).

So we can say that venomous snakes are all species that have their own way of delivering their venom. Among the types of snakes, those classified as solenoglyphs are the species that have mobile dentition and are therefore considered more serious.

Linked to this, there is also the need to mention that, the ophidism is classified based on the genus of snakes, in this sense, what has greater relevance in the epidemiological context of Brazil is relative, that is: *Bothrops*, popularly identified as botropic. This is related to the vast majority of poisoning cases that occur in the country, representing around 90% of these accidents (GARROT, 2022).

In line with this, it is evident that a list of species belongs to the botropic genus, accounting for around thirty, which can be identified throughout the Brazilian territory. In general, they are commonly designated as caiçara, jararaca, comboia, jararacuçu, urutu cruzeiro, among others. Usually, they cohabit in places that are considerably humid, or that have an abundance of rodents, such as in cultivated areas or closed forests (CERON *et al.*, 2019).

As described by CERON et al, 2019 we can affirm that the botropic group in addition to having more than two dozen subspecies and that this class is spread throughout the national territory. In Rio de Janeiro, the biggest incidents involve Jararaca.

Still in this context, it is evident how the ophidic poisons are extremely enigmatic, starting from the assumption that they present a little more than 20 distinct substances that act in a mutual way and are constituted by proteins, in addition to the significant and expansive diversity of enzymes, in addition to toxins that are not enzymatic. Perceptibly, it is possible to denote acute inflammation in patients, as well as hemorrhage and coagulation, these being due to the biochemical constituents presented by snake venom (SOUZA et al., 2021).

Undeniably, epidemiological data emerge as a favorable and viable context in terms of alerting about how snakes and snakebite accidents have become a relevant problem in the context of public health in Brazil. Nevertheless, it is still important with regard to having information on the clinical manifestations, complications and consequences of poisoning (COELHO, TAVARES and KORTE, 2021).

According to the Information System of Notifiable Diseases (SINAN), between the years 2010 and 2019, an extremely significant number of notified cases was noticeable, reaching an index of 283,303 cases of snakebite accidents at the national level, of this number, it is possible to list that, the North region recorded a total of 92,417, the Northeast presented 72,344 cases, the Southeast region 64,932, it was also possible to evidence 29,463 cases in the Midwest and 24,147 in the South (SINAN, 2021). The study also listed information on the type of snake incident in the respective cases, in this regard, the genus *Bothrops* was responsible for 42,344 cases.

Reiterating these assertions, we elaborated a search and created a framework mapping the ophidic incidents from the year 2012 to 2021. With this we will be able to observe the number of accidents per year and the total occurred in the period surveyed.

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Total:	4.580	197	13	37	171	847	5.845

Source: Notifiable Diseases Information System (2021).

In view of the above, in view of this scenario, specialists in human health, especially in the field of nursing, perform a considerable function in the assistance, care and care in the emergency, in the pre-hospital and intra-hospital. Linked to this, nurses are indispensable for the administration of the drug intravenously, as well as for the monitoring of these patients (BRANDÃO *et al.*, 2019).

With all this, the following table was created to demonstrate the studies selected for this research, where it was separated according to year, title, authors, objectives and type of study.

Table 1: Articles found on the subject

Titles / Authors (Year)	Goals	Type of study
1- Index of snakebite accidents in thick bush and main clinical aspects of cases in the years 2018 to 2019/ Brandão *et al.* (2019).	To know the main clinical and epidemiological aspects of snakebite accidents occurred in Mato Grosso.	Literature review with a qualitative approach.
2- Epidemiological profile of botropic accidents reported in the Lower Amazon region from 2019 to 2021/ Carvalho *et al*. (2023).	To evaluate the epidemiological aspects of the cases of botropic accidents reported in the Lower Amazon region in the period from 2019 to 2021.	A descriptive study, of retrospective development and quantitative approach, was carried out by consulting the database of the Information System of Notifiable Diseases (SINAN), and the platform of the Department of Informatics of the Unified Health System (DATASUS), with a time frame of data analyzed in the region between the years 2019 and 2021.
3- Snakebite accidents in the state of Santa Catarina, Brazil/ Ceron *et al.* (2019).	Present The epidemiological profile of snakebite accidents registered in the state of Santa Catarina in the period from 2007 to 2014.	Literature review with a qualitative approach.
4- Antivenom treatment: number of ampoules used related to surgical complications in snakebite accidents in the cemetron/ Coelho, Tavares and Korte (2021).	To relate the data collected in medical records of care at the Center for Tropical Medicine of Rondônia (CEMETRON) analyzing the number of ampoules of antivenom used in the treatment of snakebite accidents and the evolution of the condition of patients with surgical complications.	This is a descriptive exploratory study with a qualitative approach.
5- Snakebite accident by snake of the genus *bothrops:* review of clinical aspects and diagnostic imaging tests. Garrot (2022).	Use a clinical case of snakebite that occurred in the Rio de Janeiro, in order to revive the discussion on the Theme.	Case study of descriptive approach.
6 - Knowledge of the nursing team in the management of patients who were victims of a botropic accident in the emergency room of a university hospital/ Lopes (2019).	To evidence the knowledge of the nursing team in the management of patients who were victims of a botropic accident in the emergency room.	This is a qualitative, descriptive, exploratory study, composed of the professionals of the nursing team of the adult emergency unit of a University Hospital in Southern Brazil.
7 – Snakebite accidents in Brazil: from assistance in the city of Rio De Janeiro to animal health control in an institute producing antivenom/ Machado (2018).	To evaluate the snakebite accidents reported in Brazil with emphasis on the city of Rio de Janeiro January on hospital care and epidemiology.	This is a descriptive exploratory study with a qualitative approach.

8 – Humans, Venomous Animals and the environment./ Fuentes, Castro and Marroni (2022).	To characterize the most prevalent cases of accidents due to bites of venomous animals in Brazil regarding the sex, age and type of the animal	This is a summary of a cross-sectional study of the incidence of accidents due to the bite of venomous animals in Brazil, from 2017 to 2021, carried out at the Department of Informatics of the Unified Health System (DATASUS).
9 - Inflammatory properties of Bitis arietans snake venom: contribution of lipid mediators in in vivo poisoning and action of toxins isolated from venom in human macrophages. / Magale (2019).	To study the acute reactions promoted by the venom of the snake B. arietans and the contribution of lipid mediators to these events.	This is an observational, descriptive and prospective study.
10 - Snakes and the pharmaceutical industry: medicines and antivenom./ Rangel and Bernardes (2020).	To carry out a bibliographic review in relation to the venom (venom) of snakes, through the toxicological, pharmacological and immunoclinical aspects of interest to the pharmaceutical industry.	Literature Review.
11 - Profile of snakebite victims reported in a public teaching hospital: a cross-sectional study./ Souza *et al*. (2021).	To know the epidemiological and clinical profile of snakebite accident victims in a public teaching hospital.	This is an exploratory, descriptive, cross-sectional study with a quantitative methodological approach, carried out in a public hospital in the Southern Triangle of Minas Gerais.

Source: Research data (2023).

All articles were developed in Brazil, with Portuguese language, in national journals.

Undeniably, epidemiological data emerge as a favorable and viable context in terms of alerting about how snakes and snakebite accidents have become a relevant problem in the context of public health in Brazil. Nevertheless, it is still important with regard to having information on the clinical manifestations, complications and consequences of poisoning (COELHO, TAVARES and KORTE, 2021).

According to our research, we can affirm that each patient who suffers the bite presents its clinical manifestations referring to the action of the snake's venom. This fact occurs because each snake has a type of venom, some have hemorrhagic action, others have proteolytic action among other actions.

Still in this context, it is evident how the ophidic poisons are extremely enigmatic, starting from the assumption that they present a little more than 20 distinct substances that act in a mutual way and are constituted by proteins, in addition to the significant and expansive diversity of enzymes, in addition to toxins that are not enzymatic. Perceptibly, it is possible to denote acute inflammation in patients, as well as hemorrhage and coagulation, these being due to the biochemical constituents presented by snake venom (SOUZA et al., 2021).

Therefore, first aid actions for these victims are important. Since the venomous elements are so complex, the first care should be directed to stabilization of the patient without major processes. This fact is important, because as each venom has a specific action it becomes impossible in pre-hospital care to perform definitive treatments. One of the actions commonly performed by all venoms is the inflammatory reaction arising from the trauma of the bite.

In accordance with this, it is then inferred that the intense inflammation caused by poisoning is derived from a series of fragments of the poison, which simultaneously present indirect attributions, in addition to proposing the release of strong autacoids, such as prostacillin, leukotriene, bradykinin, among others. In the meantime, a small portion of poison presents the ability to release a list of substances that can cause inflammatory activity in the body (MEGALE, 2019).

From the moment the trauma and the inflammatory process occurs, the venoms within their specifications begin to show their actions. Confirming this statement, CERON et al, 2019 states that "Precisely from the inflammatory process, coagulant activities also begin, which corroborate too much for the so-called thrombi to be formed in the vasculature, thus impacting the blood circulation and contributing to the formation of tissue necrosis, after the worsening of edema.

Undeniably, the nursing professional is extremely important in the most varied aspects. Similarly, in cases of snakebite accidents they also assume a relevant role, especially with regard to providing intraspecific assistance (CARVALHO *et al.*, 2023).

Therefore, it is of paramount importance that nursing professionals always try to update themselves within the first aid actions. Because these events occur suddenly and often away from hospital care. The knowledge and techniques used in the pre-hospital environment can define whether the victim will live or die.

Inherent to this, among the most emphatic care that the nurse can provide in cases of snakebite accidents in primary care it is possible to mention the respective ones: in the first bias, it is crucial that the extended site is maintained and later analyze the vital signs of the patient, once this is done, it is necessary to seek means to control the pain, it is also essential to keep the place always sanitized, so that the chances of having some infection are minimized, linked to this, it is also necessary to prevent possible bleeding (FUENTES, CASTRO and MARRONI, 2022).

It is important to emphasize that the calmer we keep the patient the better it will be for the same. It is necessary to say that within the national territory the snake that has the most powerful venom is the coral. And even this snake most often the action of its venom takes hours to act on the human organism. Therefore, it is essential that the service is carried out as soon as possible, but in order to remain calm so that the service is provided safely for both the victim and the rescuers.

Reaffirming the aforementioned paragraph FUENTES, CASTRO and MARRONI, 2022 say that in view of the considerations, it is indispensable that the nurse has a technical preparation to provide patients with adequate care, thus providing nursing care in a correct way, according to the needs presented by the victim, always paying attention to possible more serious clinical conditions

With regard to the treatment for cases of snakebite accidents, notoriously, the only one that presents efficacy and viability is the antivenom, which must be specific to each type of snake, it is precisely due to this fact that the importance of taking the animal for identification and, thus, choosing the best serum for the patient is based. Coupled with this, the faster the serotherapy is performed, notoriously, the greater the chances of the patient being free of complications. That said, it should be applied, through the intravenous route, the serum without performing the dilution, the amount is variable, thus depending on the severity of the patient (RANGEL and BERNARDES, 2021).

On the other hand, we advise that instead of lay people trying to capture a venomous animal that can offer new incidents. It is important to note that in the current times we have technologies that facilitate our safety in these cases. Cell phones can help us. Simply the professional hit a good quality photo and present the same in the medical care unit. The photo can be taken safely at a safe distance. It is important to mention that the solenoglyphic snakes that give the famous "boat", these have a range of approximately 1/3 of their fulfillment. Taking the jararaca as an example that usually has a size around 90 cm, your boat has a range of 1/3 of its size. That is, your boat has a range of 30 cm. This proves that it is possible to have a good quality photo having a security to achieve a good quality.

When entering the emergency room with the patient and the on-call physician identifies the type of snake and venom that the victim was exposed, he will decide which antivenom to use.

In general, serums are characterized as being a drug consisting of antibodies produced from animals already immunized, are widely used for the treatment of intoxications arising from the poisons of venomous animals (FUENTES, CASTRO and MARRONI, 2022).

Among these serums we find antibotropics, antielapids and anticrotalics. These serums are the main ones in reference to the families of snakes found in our national territory. However it is possible to find combined serums. That is, they make action on two classes of snakes at the same time, and so are called Antibotropic-Crotalic, Antibotropic-Laquetic among others.

The administration of serotherapy should occur slowly, taking around 20 to 30 minutes, being constantly monitored by the nursing team, since some reactions to the serum may occur in the first hours. It is essential that the venous access of the patient is passed through the process of famacotherapeutic treatment, that is, a pre-medication, thus avoiding hypersensitivity and minimizing discomfort (RANGEL and BERNARDES, 2021).

5 FINAL CONSIDERATIONS

Undoubtedly, the high rates of snakebite accidents, especially in Rio de Janeiro, emphasize a major public health problem that, therefore, should be discussed. Inherent to this, it is noticeable how much the scope of nursing becomes relevant in these cases, given that, in addition to care, it also corroborates other important aspects.

From the present research it was then denoted that, among the care provided by the nursing team, the following can be mentioned: washing the place, monitoring the victim, performing the application of serotherapy intravenously, collecting blood for analysis, among others. Highlighting the indispensability of this professional.

It was found that the treatment that has the greatest potential for cases of snakebite accidents is serotherapy, through the infusion of antivenom, which will act in neutralizing the venom of the snake, the amount varies according to the clinical picture of the patient.

Given the importance of antivenom, it is therefore worth evidencing how it can impact on the clinical picture of the individual, since it has curative capacity, and can minimize possible risks of evolution of severity and affect kidney functions, also inhibiting the venom of snakes, which in some cases can be lethal. Thus, it is then perceived how important the intervention of the nursing team is regarding the infusion of medications.

It was then found from the research that, there are different types of antivenom, and should be chosen based on the animal that stung the patient. In addition, it was possible to verify that the genus *Bothrops (*jararacas, cotiaras and urutus) presents prevalence in the incidence of cases, thus, the antivenom to be used in patients is the antibotropic.

The objective of the present study was to expose the incidences of snakebite accidents, as well as the emergency, pre-hospital and intra-hospital actions. Thus, it is also inferred that the objectives of the research were successfully achieved from the stage of data collection through a literature search, to the discussion of these results throughout the development of the research. As for the methodology adopted to carry out the research, it can be inferred that it presented great importance and proved to be effective.

Therefore, there is a need to increasingly address the theme in the context of the health area, since it is perceived that many professionals still do not have specific knowledge related to snakebite accidents and how to act in these situations. Thus, it is then evident how important continuing education is for health professionals, especially those in the nursing area, especially to guide and alert them about care, drug therapy that have feasibility of use, its consequences and what are the main associated risk factors.

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