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ORIGINAL ARTICLE

Nursing team's knowledge in emergency care for burn victims

Conhecimento da equipe de enfermagem no atendimento de emergência aos pacientes vítimas de queimaduras

Conocimiento del equipo de enfermería em la atención de emergencia a víctimas de quemaduras

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RESUMO

Objetivo: identificar o conhecimento da equipe de enfermagem de uma unidade de emergência às vítimas de queimaduras e analisar as dificuldades da equipe de enfermagem frente ao paciente queimado e discutir os cuidados de enfermagem aos clientes vítimas de queimaduras. **Métodos:** estudo de abordagem qualitativa, descritiva realizado com 11 profissionais da equipe e Enfermagem lotados em uma unidade de emergência. A coleta foi realizada através de um instrumento online. Os dados foram organizados e procedeu-se com a análise de conteúdo. **Resultados:** identificou-se que os profissionais têm de dois a cinco anos lotados na emergência e que seis são do sexo male. Quanto ao tratamento imediato foram elencados cuidados, como o resfriamento da lesão, a limpeza, o controle dos sinais vitais, analgesia e avaliação neurológica. **Considerações finais:** identificou-se a necessidade de mais abordagens teórico-práticas sobre a assistência de Enfermagem em emergência ao paciente vítima de queimaduras.

DESCRITORES: Cuidados de Enfermagem; Queimaduras; Emergências.

ABSTRACT

Objective: to identify nursing team's knowledge in an emergency care unit for burn victims and analyze nursing team's difficulties when dealing with burn patients and discussing nursing care for burn victims. **Methods**: a qualitative, descriptive study carried out with 11 team and nursing professionals working in an emergency unit. The collection was carried out using an online instrument. Data were organized and content analysis was carried out. **Results**: it was identified that professionals have been

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working in the emergency department for two to five years and that six are male. As for immediate treatment, care was listed, such as cooling injury, cleaning, controlling vital signs, analgesia and neurological assessment. **Final considerations:** the need for more theoretical-practical approaches to emergency nursing care for burn victims was identified.
DESCRIPTORS: Nursing Care; Burns**;** Emergencies.

RESUMEN

Objetivo: identificar el conocimiento del equipo de enfermería de una unidad de emergência a víctimas de quemaduras y analizar las dificultades del equipo de enfermería frente al paciente quemado y discutir el cuidado de enfermería a los clientes víctimas de quemaduras. **Métodos**: estúdio com abordaje cualitativo, descriptivo, realizado con 11 profesionales del equipo y de enfermería que actúan en una unidad de emergencia. La recolección de datos se realizó mediante un instrumento en línea. Se organizaron los datos y se procedió al análisis de contenido. **Resultados**: se identificó que los profesionales actúan en la emergencia de dos a cinco años y que seis son del sexo male. Encuanto al tratamiento inmediato, se enumeraron cuidados como enfriamiento de la lesión, limpieza, control de signos vitales, analgesia y evaluación neurológica. **Consideraciones finales**: se identifico la necesidad de más abordajes teórico-prácticos sobre la atención de enfermería em urgencias a víctimas de quemaduras.

DESCRIPTORES: Atención de Enfermería; Quemaduras; Urgencias Médicas.

INTRODUCTION

Burns are among the main causes of morbidity and mortality in Brazil and of emergency services, constituting a relevant public health problem in the country[1]. In Brazil, it is estimated that approximately 1,000,000 people per year suffer some type of burn injury and, within this number, 40,000 require hospital admission and around 200,000 require care in emergency units[1]. Among the most vulnerable individuals affected by burns are children under 15 years old, victims of scalds and older adults due to physical limitations[2].

Burns consist of injuries resulting from agents, such as thermal, chemical or electrical energy, capable of producing excessive heat, which damages body tissues[2].

Furthermore, the degree of tissue involvement from the trauma varies according to the extent and depth of the injury, which can be classified as first, second or third degree burn, despite being classified into up to five categories, based on Standard 022/2012[2,5]. Therefore, large areas of burns result in an excessive amount of devitalized tissue and, possibly, in manifestation of associated immunosuppression, contributing to an increase in the risk of infection, in addition to enabling stimulation of intense metabolic responses, causing immediate and suffering, developing physical and emotional consequences both for victims and their families[3,4]. Regarding severity, it is defined according to its extension plus its depth and the existence of an inhalation injury or polytrauma[2]. Thus, the body surface area reached is assessed according to the rule of nine[5].

Therefore, it is extremely important to administer rapid and qualified nursing care to burn victims, aiming to inhibit the progression of injuries and possible related sequels as well as meeting basic human needs[6]. In this context, it is clear that nursing team's knowledge regarding acute trauma treatment assumes a fundamental part of the care process, given that this is a decisive moment for the next steps of care, with the aim of slowing down disease development and minimizing damage to health[1,7].

It is currently understood that the emergency sector is configured as a link between the population and health care, and that emergency situations occur daily, affecting individuals of all age groups, regardless of sociocultural, economic or spiritual factors[8]. Considering the above, the development of research is justified by the need to update and deepen nursing team's knowledge on the care of burn victims, in order to assist in directing the multidisciplinary team from pre-hospital care to the recovery of these patients, outlining more specific and current health strategies for this public. In light of the foregoing, the object of this article is nursing team's knowledge in emergency units about the care of burn patients.

The objective, therefore, was to identify a nursing team's knowledge that works in an emergency unit of a general hospital for burn victims and analyze a nursing team's difficulties when faced with burned patients and discuss nursing care for clients who are victims of burns.

METHODS

This research was developed following the COnsolidated criteria for REporting Qualitative research (COREQ).

Study design and methodological procedures

This is an observational study with a qualitative, descriptive approach.

Study setting

The research was carried out in the emergency department of a general teaching hospital in the countryside of the state of Rio de Janeiro, providing support for medium and high complexity, which is licensed by the Ministry of Health as a High Complexity Care Unit in Adult and Neonatal Intensive Care type II, Hemodialysis, Clinical/Surgical Oncology, Cardiac Surgery, Hemodynamics, Electrophysiology, and Trauma-orthopedics.

Data source

The research sample consisted of 11 professionals, four nursing technicians and seven nurses, with at least one year of professional experience in emergency services.

Nursing technicians or nurses, with professional experience of at least one year in emergency

services, were included. Professionals who were away from their work activities throughout the collection period were excluded.

Work steps

The study was carried out in three steps: the first step was exploratory in nature, with a survey and analysis of bibliographies using the descriptors “nursing care”, “burns” and “emergencies”. The second proceeded with data collection through the online form and in the third step data organization and analysis took place.

Data collection and organization

The instrument used to collect data was an online form produced by the authors using Google Forms®, containing open- and closed-ended questions about participants’ knowledge about emergency care for burn victims. Health professionals were invited to participate in the study through a message sent via WhatsApp® and email, and their consent was obtained through the Informed Consent Form (ICF), which was present in the first section of the form, also available to participants at all times for download.

Access to the nursing team in the hospital’s emergency department became necessary in October and November 2022, and the material was sent to participants via email and WhatsApp®, along with an invitation to the survey. The first step of the form formalized consent to participate in the study and, after clicking on the acceptance icon, participants were directed to questions relevant to the research.

The instrument consisted of collecting sociodemographic data (age, sex), questions related to the profession (education, length working in the health sector, sector in which they work and length working in the emergency sector) and essential questions about familiarity with emergency care for burn victims based on the booklet for emergency treatment of burns formulated by the Ministry of Health in 2012. The research members were identified by an alphanumeric code according to their professional category, in order to ensure participant confidentiality.

Data analysis

The reflection on the data obtained occurred through content analysis techniques, according to pre-analysis, material exploration and treatment of results linked to inference and interpretation[9]. Given the above, the following categories emerged: 1) Nursing team’s knowledge in emergency care for burn victims; 2) Nursing team’s difficulties when dealing with burn patients; 3) Nursing care for clients suffering from burns.

Ethical aspects

In compliance with the ethical precepts of research involving human beings, the present study was assessed by the Research Ethics Committee (REC). It was approved under Opinion 5,648,936, according to CAAE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 61799522.5.0000.5290.

RESULTS

A total of 11 answers were obtained from health professionals from two different nursing categories, including nurses and nursing technicians. Length working in the health sector ranged from two to 20 years, with a mean of 11.7 years. Regarding the length dedicated to the emergency sector, this ranged from two years to more than 10 years, with a predominance of two to five years. Regarding sex, six of participants were male, while five were female, with ages ranging from 22 to 54 years old, with a mean of 37.8 years old. These results can be found in Chart 1.

Chart 1. General characteristics of the sample

Code	Date of birth	Sex	Training	Length working in the health sector	Length working in the emergency sector
NT1	07/24/1989	Male	Nursing technician	12 years	6 to 10 years
NT2	10/21/1994	Male	Nursing technician	2 years	2 to 5 years
NT3	10/17/1981	Female	Nursing technician	8 years	2 to 5 years
N1	11/20/1988	Male	Nurse	8 years	6 to 10 years
N2	01/03/1979	Female	Nurse	20 years	6 to 10 years
NT4	21/12/1999	Female	Nursing technician	2 years	2 to 5 years
N3	09/18/1983	Male	Nurse	16 years	6 to 10 years
N4	11/11/1982	Male	Nurse	11 years	6 to 10 years
N5	07/15/1984	Male	Nurse	15 years	More than 10 years
N6	08/08/1978	Female	Nurse	20 years	2 to 5 years
N7	03/04/1968	Female	Nurse	15	2 to 5 years

Caption: NT – Nursing technician; N – Nurse.

Source: Study data, 2022.

According to professionals, everyone reported having had some experience caring for burn

victims. As for the type of experience, 10 of participants claimed that they had contact with this type of trauma through professional experience, two reported having personal experience with the topic, eight participants claimed that they had some contact within the scope of their academic training.

The characterization of professionals' knowledge was divided into knowledge about burns, affected body surface and water control of these victims. In their answers, six of participants classified their knowledge about the classification of burns as being basic, while five of them considered it moderate. Regarding qualification of knowledge about the classification of achieved body surface, the results obtained were more divided, where six of professionals claimed to have basic knowledge, four consider it moderate and one reports extensive knowledge on the topic. Furthermore, when asked about water management in burn victims, five participants characterized knowledge as basic and six considered it moderate, based on their practical activities through such care. For professionals, the understanding of burns was presented as follows:

> An injury generated by some agent that can be heat or cold, chemicals, among others (NT2).
>
> Burn is a type of trauma (acute), characterized by the transfer of energy directly or indirectly to the skin, through radiation, convection, conduction, thus destroying the barrier (main function) formed by it (it is worth remembering that the skin is not good thermal conductive) (N1).
>
> Damage to the skin or deeper tissues caused by sun, hot liquids, fire, electricity or chemicals (NT4).

Immediate emergency treatment for burn patients was defined by participants, according to their understanding, as:

> Hydrate the patient quickly, place a damp cloth on injuries (NT1).
>
> Try to bring comfort and reduce the risk of infection of affected parts (NT2).
>
> The initial measures for a burn patient are to remove victims from the heat source, followed by immediately cooling the skin with running water from the tap or shower, for no more than 20 minutes due to the risk of hypothermia, then using silver sulfadiazine and applying a bandage (NT4).
>
> Remove clothing, objects, cover injuries with clean, sterile tissue (N7).

According to their understanding of inhalation injuries, the members defined them as:

> It is an injury to the respiratory tract caused by combustion or inhalation of chemical products (NT3).
>
> Injury is the inflammatory process of the airway caused by the agent that generated it, especially when there is combustion at the scene (N1).

> Result of the inflammatory process of airways after inhalation of incomplete combustion products (N5).
>
> Ingesting smoke or inhaling chemicals (N6).

When asked about immediate measures and how to treat burn injuries, professionals gave the following answers:

> First, move patients away from the offending agent, be it fire, electric current or radical, wash the area with cold water with gentle jets for approximately 10 minutes to avoid hypothermia, or cold, moist compresses (NT2).
>
> Use the ABCDE – APH protocol: airway, ventilation, circulation/hydration; neurological assessment; exhibition. Cooling the injury (note: products that may come into contact with) (N1).
>
> Place the burned area under cool water (not ice cold) or place clean, cool compresses on the burn until the pain disappears. Cooling injuries with cold water is the best emergency burn treatment (NT4).
>
> Monitor airway, monitor blood volume, monitor inflammatory complications (N4).

Regarding the perception of the need for an instrument that helps provide care to burn victims, the results tended towards one of the options: nine participants reported feeling this need, while two of them did not consider it essential. In contrast, in relation to the search for updates in care by professionals working in the emergency sector, there was a greater discrepancy in results: one member considered it satisfactory; five considered it moderate; two reported being lower than desired; and three said it was unsatisfactory.

Regarding the institution's participation, participants were challenged regarding provision of updates on the topic. There were divergences in the answers, where: one professional considered it satisfactory, four of them believed it to be moderate; three reported being below expectations; and three other participants agree that collaboration is unsatisfactory.

DISCUSSION

Experience with the topic can be considered as any type of relationship that professionals develop with burns, which can occur in the personal, professional or academic sphere[1]. It is worth highlighting the fact that the majority of members had contact with the problem in question throughout their professional training. When analyzing epidemiological publications on accidents involving burns, it is clear that they are generally preventable. It is essential to share the knowledge obtained about the factors that pose a risk of its occurrence, in addition to propagating preventive measures with the aim of reducing the incidence of this condition as well as associated sequels and deaths[10].

Regarding topics of utmost importance for the care of burned patients, such as classification of burns, affected body surface and water control in burned patients, it was observed that there is a gap in professionals' knowledge, since the majority of participants classified their knowledge as basic to moderate, a factor that allows interference in the quality of care provided to victims. Recently, burns are classified according to an investigation of the depth of the affected area, according to epidermis, dermis, hypodermis and bone tissue involvement[11].

Furthermore, it is worth highlighting that the burned body surface area (BBSA) calculation adds different values in adult and pediatric assessments, a factor that has great relevance in immediate care of victims and definition of subsequent care. Another factor that must be paid attention to is the assessment of signs of hypovolemic shock, performing volume replacement when necessary in order to preserve systemic perfusion and maintain fluid control monitoring. Nurses are responsible for observing and monitoring the calculations of the solutions that will be infused into patients, since the amount of volume instilled varies depending on the origin of the accident and characteristics of injured persons, such as weight, age group and existence of comorbidities[7,12].

Despite the high incidence of burns in Brazil, care for burn victims is not frequent in the studied setting. However, the lack of a reference hospital to receive this type of incident makes it necessary to prepare the hospital in question as well as others to provide care at any time. Furthermore, emergency services are an important means of access to the health system for the population and, as a result, must have a qualified team to provide care, regardless of their specialty, communicative and with the ability to make quick and assertive decisions[1].

Regarding participants' understanding of definition of burns, the words sources of heat, electricity and chemicals were frequently found. It has been observed that this type of trauma is commonly associated with excessive heat. However, when the Brazilian Burn Society (SBQ - *Sociedade Brasileira de Queimaduras*) lists thermal agents as one of the causes of injuries, it refers to both excessive heat and cold, as is the case with cold burns, i.e., when skin and other tissue damage is a consequence of their cooling[13].

Due to Brazil's climatic conditions, this type of injury is not common in the region covered; however, it can be found as a sequel to cryotherapy, therapeutic modality where low temperatures are used to eliminate compromised tissues, as in cases of neoplastic injuries[14]. Therefore, trauma caused by cold burns should be known to professionals and should not be underestimated, as they can lead to severe complications, such as significant tissue loss.

When receiving a burned patient in hospital settings, it is necessary to promote comfort within victims' conditions, which can be achieved through analgesia, as mentioned by some participants. Pain, considered the fifth vital sign, follows patients as the most common sign and, therefore, its management

is an extremely important factor in burn treatment, since, when handling burn victims when providing care, moving them generates acute discomfort, in a way that allows changes in other parameters, producing tachycardia, hypertension, sweating, agitation and respiratory distress[5,15].

Regarding the definition of emergency treatment for this type of trauma, the Ministry of Health (MoH), in the booklet for emergency care for burns published in 2012, immediate actions are considered to be interruption of the burn process, removal of clothing and decorations and covering injuries with clean tissue[2]. In this context, it is noteworthy that few participants cited ornament removal as a step in care and that most participants reported the importance of cooling injuries; however, few addressed the care necessary for this process.

Cooling the injury site aims to delay the development of the burn, through the use of clean, running water at room temperature, for a pre-defined time of no less than 10 minutes, highlighting that reducing temperature, when carried out at the appropriate time, minimizes the risks of associated infection as well as promoting analgesia and speeding up healing in deeper traumas[7,16]. Furthermore, it should be noted that, as it is a tetanogenic injury, MoH considers the administration of tetanus prophylaxis as an immediate measure of care[2]. However, this step of care was not mentioned by professionals.

A substantial portion of deaths caused by fire or explosions are related to airway damage and the results of combustion[17]. In view of this, it was analyzed that participants' answers covered inhalation injuries superficially, as some of them highlighted that they are an inflammatory process triggered by combustion agents, without, however, reporting its real complications, such as the high demand for endotracheal intubation, in most cases, increasing the risk of developing associated pneumonia[17].

Emergency sectors are characterized by the care of both acute and chronic patients and, for this reason, care protocols emerge as a differentiator for maintaining qualified care, through standardization of conduct towards patients[18]. Based on the above, it is noted that the vast majority of research participants feel the need for a guiding instrument for care in search of an improvement in quality of care.

Therefore, it is highlighted that nursing work must be organized so that the nursing process is essential in provision of care, requiring specific knowledge of the pathophysiology of the disease, especially to detect problems and implement specific care, in addition to ensuring greater autonomy for the team[19].

The initial actions carried out with burn patients are essential for the outcome of the case, as they may interfere with clients' entire treatment cycle[1]. Furthermore, it is worth noting that all care provision generates expenses for the institution and that the significant increase in occurrence of burns throughout the country has caused increasing costs, which directly reflect on hospital organization management and, due to this, it is necessary for the nursing team to be in constant search for updates[3]. However, it was observed that some participants claimed that this search for improvement could be more

active, either on professionals' initiative or by encouragement from the institution.

Study limitations

The study was carried out with only one setting, in order to make it difficult to project the profile of nursing professionals in the emergency sector, making it necessary to replicate the study in other settings.

Contributions to nursing, health or public policy

Through this study, it can be identified that a nursing team prepared to care for burn accidents is capable of preventing further harm to patients as well as reducing morbidity and mortality and reducing the costs of health institutions related to care caused by the condition in question. Therefore, professionals must be able to act in these cases, in addition to developing the ability to make quick decisions in stressful environments. It is also possible to notice that, when confident in the care process, the team becomes capable of detecting problems early and implementing the necessary care for the situation, in addition to guaranteeing greater autonomy for health professionals. Therefore, it is extremely important for nursing professionals in the emergency sector to constantly update their technical and scientific knowledge on the most varied types of illnesses to enhance the effectiveness and efficiency of care. This research made it possible to identify weaknesses in nursing team's knowledge when caring for burn victims.

FINAL CONSIDERATIONS

The study reported that all participating professionals had experience with incidents caused by burns; however, the level of theoretical knowledge pointed out by some of them was superficial in relation to emergency care for burned clients. Regarding injury treatment, it is worth highlighting that practice plays a very important role as a generator of knowledge, since most participants were able to report the emergency treatment of this trauma, however some difficulties were observed in supporting treatment actions.

The reduced offer of updates provided by the institution and professionals' search for them highlight the need for greater attention regarding the provision of theoretical-practical approaches to accidents caused by burns, in order to qualify customer care, enabling greater chances of recovery without subsequent trauma sequels as well as reducing morbidity and mortality rates in the country.

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