

EPIDEMIOLOGICAL CHARACTERIZATION OF ADULT PATIENTS HOSPITALIZED IN A BURNS INTENSIVE CARE UNIT*

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ABSTRACT: This quantitative, exploratory, descriptive and retrospective study aimed to identify the epidemiological profile of adults hospitalized in an intensive care unit in relation to the socio-demographic variables and the characteristics of the burn, based on data collected from 50 hospital records, from October 2011 to May 2012. The male sex predominated (74%); the mean age was 41.02 years; thermal burns occurred in 88% of cases, with the following predominating: domestic accidents, characterized by scalds; the use of alcohol for lighting barbecues or wood-burning stoves; the explosion of pressure cookers, gas canisters, and fireworks; and fires in the home. Third degree burns occurred in 70% of the cases, inhalation injuries were identified in 22% of the patients, and discharge from hospital was a more common outcome than death. It is concluded that the majority of burns can be prevented; it is necessary to implement public policies and continuous health education actions for society.

DESCRIPTORS: Burns; Intensive care; Burns centers; Public policies.

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INTRODUCTION

It is estimated that 195,000 deaths/year are caused by burns worldwide, the great majority occurring in low- and middle-income countries. In low-income countries, the death of children from burns is seven times greater than in high-income countries⁽¹⁾.

Burns are a significant problem for public health in Brazil, because in addition to causing a high number of deaths each year, they provoke physical and psychological sequelae which mark their victims and are highly costly⁽²⁾. The mean amount spent by the Ministry of Health (MS) in Brazil on the hospitalization of people with serious burns is R\$1,000,000/month⁽³⁾, around \$500,000/month.

The Brazilian Burn Society states that 1 million people are victims of burns each year and that between 1996 and 2008, 13,735 deaths caused by this problem were recorded⁽⁴⁾. Social and financial problems linked to work, due to medical leave, retirement and rehabilitation are some of the upheavals caused by the burns. These health problems affect the patients and their family members psychologically as well, not only because of the innumerable scars and physical deformities, but also because of the lengthy period of hospitalization which they often require⁽²⁾.

A burn is a traumatic injury mainly caused by thermal, chemical, electrical or radioactive agents. It occurs in the human body's covering tissues, and may partially or totally destroy the skin and its attachments, as well as the deeper layers, such as subcutaneous cellular tissue, muscles, tendons and bones^(1,5).

In the light of the above, the present work is justified, as studies of this nature can contribute to guiding public policies and health education actions, so as to prevent burns, given that they allow the identification of specific characteristics, sex, age range, type of injury, etiology, causal agent and classification, among others. Having knowledge of the population attended is a foundation for the managers of the Intensive Care Unit (ICU) of the Burns Treatment Center (BTC) studied, for the improvement of the service, ranging from the care for patients and their family members, through to education at work, staff training and the development of preventive projects for the population.

As a result, this study aimed to identify the epidemiological profile of adult patients hospitalized in the ICU of a BTC, relating to the socio-demographic variables and characteristics of the burn.

METHOD

This is an exploratory, descriptive and retrospective study, with a quantitative approach, undertaken in the six-bed ICU of the BTC of the University Hospital of Londrina. It is noteworthy that in the State of Paraná (PR) there are only two BTC, one in the city of Curitiba and the other in the city of Londrina.

The data collection period was from October 2011 to May 2012. It used data extracted from 50 hospital records from all the adult patients admitted in this period and who met the inclusion criteria: to be aged 18 years old or over, and to be hospitalized for a minimum period of 24 hours. Readmissions were excluded from the study.

An instrument containing the following variables was used for data collection: sex, age, etiology of the burn (thermal, chemical, electrical, radiation, others), agent (alcohol), the depth of the wound (2nd or 3rd degree), inhalation injury, classification (domestic accident, work accident, suicide, homicide), where it occurred, and outcome (discharge, death). The data were organized and stored in an Excel 2007 electronic spreadsheet, and the 'Statistical Package for the Social Sciences' program (SPSS)®, version 19.0, was used for analyzing the data.

The project was approved by the Research Ethics Committee of the State University of Londrina, with a favorable decision under number 214/2011 and CAAE 0187.0.268.000-11.

It is emphasized that for undertaking this study, the "Terms of Confidentiality" were filled out and signed, in which the researcher gave an undertaking to keep confidential all the technical and other information related to the research project, including respect for patient's identity.

RESULTS

Table 1 shows the sociodemographic characteristics of the patients and of the burns. Male patients predominated (74%) in relation to females (26%), and the age varied from 18 to 76 years old, with a mean of 41.02 years old. Thermal burns occurred at a frequency of 88% and electrical burns at 12%; third degree burns occurred in 70% of the cases and inhalation injuries occurred in 22% of the patients. More patients were discharged from ICU than died, discharges representing 74%. It was identified that domestic accidents, characterized by scalds, the use of alcohol for lighting

barbecues, the use of alcohol for lighting wood-burning stoves, the explosion of pressure cookers, gas explosion, explosion of fireworks and fires in the home predominated.

Regarding number of days of hospitalization, it was identified that it varied from 2 to 97 days, with a mean of 24 days.

Table 1 - Distribution of the adult patients with burns, by sociodemographic variables and characteristics of the burns. Londrina-PR-Brazil, 2012.

Variables	n	%
	50	100
Sex		
Male	37	74
Female	13	26
Age range		
< 20	02	4
20 – 29	11	22
30 – 39	14	28
40 – 49	08	16
50 – 59	07	14
60 and over	08	16
Etiology of the burn		
Thermal	44	88
Electrical	06	12
Causal agent (alcohol)		
Yes	25	50
No	25	50
Depth of the lesion		
Second degree	15	30
Third degree	35	70
Inhalation injury		
Yes	11	22
No	39	78
Outcome		
Discharge from ICU	37	74
Death	13	26
Classification of the burn		
Domestic accident	32	64
Work accident	10	20
Homicide	05	10
Suicide	03	6

DISCUSSION

This study's data demonstrated the predominance of male patients, which was also ascertained in a study which analyzed the epidemiological profile of patients hospitalized in a BTC in the city of Rio de Janeiro⁽⁶⁾ and in the Hospital of the State Public Service in São Paulo⁽⁷⁾. The hospitalizations of adult patients with burns found in the present study showed predominance in an age range which is similar to the data of a study undertaken in the BTC of the Federal University of São Paulo in which 33.6% of the patients were aged between 31 and 50 years old and 31.7% were aged between 19 and 30 years old⁽⁸⁾.

The individuals who make up this age range are part of the economically active population, leading to economic and social problems. Burns, generally speaking, affect individuals of productive age, who are often responsible for the sole source of income in their household⁽⁷⁾. In many cases the burns cause permanent damage, such as reduction of functional capacity and physical and esthetic sequelae, which can also be transformed into psychological traumas, resulting in a chronic health condition⁽⁹⁾.

During the period of this investigation, there were no cases of chemical or radiation burns. Thermal burns predominated, with half of these caused by the use of liquid alcohol and fire. These data are similar to those of an investigation which evaluated the epidemiological and anthropometric profile of patients hospitalized in a BTC in Brasília and identified that alcohol associated with fire was the most prevalent causal agent⁽¹⁰⁾. It is inferred that these data may be related to this product's indiscriminate use, mainly in the home, due to the population's easy access to acquiring it and to unawareness of the risks of accidents. This being the case, it is fundamental for health professionals to provide guidance for patients, family members and society in general about the dangers and the care which must be taken when using the combination of liquid alcohol and fire.

It was observed in this study that electrical burns occur at a much lower frequency than thermal burns. These data are similar to those of a study undertaken in the BTC of the Federal Hospital of Andaraí which showed that only 9% of the total of 1773 hospitalizations had an electrical etiology⁽¹¹⁾. This etiology's low frequency is no less worrying, as authors⁽¹¹⁻¹²⁾ state that burns from low tension currents have a low rate of morbidity and mortality, with rare hospitalization, while those caused by high tension (over 1000 volts),

are extremely serious for the victim. It is emphasized that the sequelae caused by high tension burns can cause physical and psychological traumas, difficulties in walking, amputations which often require the use of prostheses, scars and permanent neurological injuries, in addition to the esthetic aspect of the patient and distortion of self-image⁽¹¹⁻¹²⁾.

Third degree burns occurred in 70% of the cases, a fact which differs from the results found in the BTC of the emergency hospital in Sergipe, in which 15.25% of the hospitalized patients had third-degree burns, 83.86% had second-degree burns and 0.9% had first-degree burns⁽¹³⁾. It is known that there is a certain difficulty in obtaining accurate data regarding the depth of the wounds, as some professionals are only attentive to recording the burns with more serious depths in the hospital records, even when the same patient has wounds of different depths⁽¹⁴⁾. It is therefore essential to carry out educational actions showing the health professionals the importance of recording all the patients' data, given that this is a legal record, a source of clinical and administrative information for decision-making, and a means of shared communication between all the professionals.

Inhalation injuries, in this study, occurred in 22% of the patients. These data differ from those of another study which indicated that 10.9% of the total of hospitalizations from burns were caused by inhalation injuries⁽¹⁰⁾, this being the principal injury responsible for the mortality (60 - 80%) of the patients who suffered burns⁽¹⁵⁾. This injury has a high rate of mortality and complexity in the treatment, and produces an important inflammatory response, with pulmonary and systemic repercussions, this showing the seriousness of this type of burn⁽¹⁶⁾.

Discharge from the ICU of the BTC was predominant in the present study. Differing results were found in an investigation undertaken to demonstrate the profile of the patients attended in the BTC in the city of Aracaju, where the death rate was 3.1%⁽¹⁷⁾. However, a high rate was also found in a study of a BTC in Germany where the death rate was 15%⁽¹⁸⁾.

It is suggested that the high rate of mortality found in this study may be related to the fact that a large number of the patients admitted in the ICU of the BTC come from cities in the interior of the State of Paraná, and have suffered the burn some days previously. This fact can contribute to the delay in initiating specific therapy, which can result in serious consequences and complications for the success of the treatment. This observation must guide the health team in planning

the care, so as to avoid complications and worsening in the patients' general state. It is a fact, however, that appropriate volemic resuscitation, initiated soon after the accident, is an important gain in the survival of patients who suffer large burns⁽¹⁹⁾. Hence, it is necessary to undertake training for health professionals regarding the first care steps to be given to patients with burns.

Other factors which contributed to death were the high incidence of patients with inhalation injuries, Body Surface Area Burned and age. It is known that the presence of inhalation injury increases by 20% the mortality associated with the extent of the burn⁽¹⁶⁾. Age, the extent of the body surface burned, and the presence of inhalation injury are variables which can, to varying degrees, influence the occurrence of death⁽²⁰⁾. It is probable, therefore, that these variables contributed to the high rate of mortality observed in the present study.

In relation to domestic accidents, it is inferred that the majority could have been avoided if people were aware of the risks to which they are exposed, due to factors such as: lighting a barbecue or wood-burning stove with alcohol, carelessness with hot liquids, and use of fireworks, among others. In a study undertaken in a teaching hospital in the North West of Paraná, the results demonstrated that domestic accidents were the most frequent in relation to other types of accidents involving burns⁽²¹⁾. Similar results were identified in an epidemiological study, in which 45.7% of the patients' burns occurred at home⁽²²⁾.

Regarding the number of days of hospitalization, data analogous to the present study were found in an investigation undertaken in a BTC in Brasília, where the mean length of hospitalization was 27 days⁽¹⁰⁾.

Finally, it is emphasized that this study's findings showed that the objectives planned were achieved, although there are limitations due to this being a retrospective study in which variables such as occupation prior to the trauma and sequelae, among others, could not be identified. As a result, further studies addressing these limitations are suggested.

CONCLUSION

Male patients predominated, with a mean age of 41.02 years, which is considered a productive age. Thermal burns occurred at a higher frequency than electrical burns, as did third-degree burns. Inhalation injuries were present in 22% of the patients; more patients were discharged than died and domestic accidents predominated.

The present study's results point to the need for interventions in the field of Health Education for the population, with the aim of undertaking actions for preventing harm and promoting health, although not only in primary care, but also in secondary and tertiary care, as is the case of the services which are specialized in treating burns patients, that is the ICU of the BTC.

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