PROFILE OF CHILDREN AND ADOLESCENTS IN THE BURN UNIT
PERFIL DE CRIANÇAS E ADOLESCENTES INTERNADOS NO CENTRO DE TERAPIA DE QUEIMADOS

PERFIL DE NIÑOS Y ADOLESCENTES INTERNADOS EN EL CENTRO DE TERAPIA DE QUEMADOS

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ABSTRACT

Objective: to describe the accident and the profile of children and adolescents victims of burns hospitalized at a Burnout Therapy Center of a General Hospital. **Method:** this is a quantitative, descriptive, observational, cross-sectional study carried out with records of records of inmates in the age group from one day to 18 years, from 2014 to 2016, and interviews with those responsible for inmates, and the results were presented in the form of tables. **Results:** most of the accidents occurred in male children (63.33%), in the age group less than five years old (62.22%). The main causal factor was scald (65.00%), with second degree lesion (58.88%) and multiple topography (63.33%). **Conclusion:** it is concluded that the majority of burn injuries happened in the home environment with the presence of the mother or responsible in the environment, suggests that prevention should be worked out, with education for risks and modification of the environment in which the child lives. **Descriptors:** Child; Adolescent; Burn; Accident; Hospitalization; Injuries and Lesions.

RESUMO

Objetivo: descrever o acidente e o perfil de crianças e adolescentes vítimas de queimaduras internados em um Centro de Terapia de Queimados de um Hospital Geral. **Método:** trata-se de um estudo quanti-qualitativo, descritivo, observacional, transversal realizado com dados dos registros de prontuário de internos na faixa etária de um dia a 18 anos, de 2014 a 2016, e entrevista com os responsáveis pelos internos, e apresentaram-se os resultados em forma de tabelas. **Resultados:** ressalta-se que a maioria dos acidentes ocorreu em crianças do sexo masculino (63,33%), na faixa etária menor que cinco anos de idade (62,22%). O principal fator causal foi a escaldadura (65,00 %), com lesão de segundo grau (58,88%) e com topografia múltipla (63,33%). **Conclusão:** conclui-se que a maioria dos acidentes por queimaduras aconteceu no ambiente doméstico com a presença da mãe ou responsável no ambiente, sugere que a prevenção deve ser trabalhada, com educação para riscos e modificação do ambiente em que a criança vive. **Descritores:** Criança; Adolescente; Queimadura; Acidente; Hospitalização; Ferimentos e Lesões.

RESUMEN

Objetivo: describir el accidente y el perfil de niños y adolescentes víctimas de quemaduras internados en un Centro de Terapia de Quemados de un Hospital General. **Método:** se trata de un estudio cuali-cuantitativo, descriptivo, observacional, transversal realizado con datos de los registros de prontuario de internos en el grupo de edad de un día a 18 años, de 2014 a 2016, y entrevista con los responsables de los internos, y se presentaron los resultados en forma de tablas. **Resultados:** se resalta que la mayoría de los accidentes ocurrió en niños del sexo masculino (63,33%), en el grupo de edad menor a cinco años de edad (62,22%). El principal factor causal fue la escaldadura (65,00%), con lesión de segundo grado (58,88%) y con topografía múltiple (63,33%). **Conclusión:** se concluye que la mayoría de los accidentes por quemaduras ocurrió en el ambiente doméstico con la presencia de la madre o responsable en el ambiente, sugiere que la prevención debe ser trabajada, con educación para riesgos y modificación del ambiente en que el niño vive. **Descriptores:** Niño; Adolescente; Quemar; Accidente; Hospitalización; Heridas y Lesiones.

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INTRODUCTION

It is verified, according to the Brazilian Society of Burns, that there are one million cases of burns per year, of which 200 thousand are attended in emergency services and 40 thousand require hospitalization.¹ It is highlighted that, in 2006, the burns were responsible for 363 deaths in children under 15; in 2010, the number of hospitalized increased to 21,472, but the number of fatal cases dropped to 313.²⁻³ It is evident from these data that, although advances in hospital care contribute to the survival of patients who have suffered thermal trauma, preventive measures are still necessary to contain this growing trend in relation to the number of victims.⁴

As the main causes of childhood burns, accidental occurrences in the domestic environment are cited as the main agents responsible for this type of trauma, which in these cases are usually more superficial, more extensive and have a higher incidence in children from six months to two years, while flaming accidents are more frequently observed in children from preschool age.⁵

In addition to the risk of death, complications such as septicemia and renal and cardiorespiratory failure may induce important metabolic changes as well as physical and psychological sequelae. It is known that in the United States, about 0.7% of the deaths that inflict children come from burns, which represents the same rate of deaths from poisoning.⁵ It should be noted that, even with physical survival, scars and contractures often lead to distortion of the image, which will be carried on forever, since burn injuries can result in lifelong disfigurement. psychosocial commitment of the patient; On the other hand, with advances in medical and surgical techniques for resuscitation, healing and reconstruction, people who have suffered burn injuries have a better outlook for survival.⁶

As a matter of extreme importance, the families' awareness as a way to prevent such accidents is evaluated, causing less burden on the State, the family and the affected child or adolescent.

It is pointed out that, in the whole national territory, the prevention programs of this type of accident are scarce and that the Burn Unit (BU) of the general hospital studied, located in the city of Maceió (AL), is also , the reference center for the treatment of burns in the State of Alagoas, that the epidemiological design may represent an important instrument not only to characterize the affected

population, but also to define the circumstances in which these injuries occurred, for the prevention of such accidents.

OBJECTIVE

- To describe the accident and the profile of children and adolescents victims of burns hospitalized at a Burn Unit of a General Hospital.

METHOD

It is a quantitative, descriptive, observational and cross-sectional study. The quantitative data were obtained through secondary data from the Burn Unit (BU) of a general hospital in Alagoas, using records and records of the hospital from January 2014 to December 2016; the qualitative data are derived from interviews with those responsible for patients hospitalized in the hospital from August 2016 to June 2017.

The sample was composed by children and adolescents in the age range of one day to 18 years (complete), hospitalized with the diagnosis of burn, in the selected period. Data from medical records was collected by medical students, recording them in a research protocol, including age, sex, and days of hospitalization, origin, burn-causing agents, and characteristics of the lesions, hospitalization and the outcome of the cases. Quantitative data were analyzed by descriptive statistical measures of frequency, fashion, median and Student's t using the SPSS program.

Qualitative data were obtained at the time of the hospital visits, when 37 persons whose children and/or adolescents were hospitalized were interviewed during the data collection period. The interviews were recorded in a digital device, transcribing them in their entirety, being composed of two open questions, trying to identify how the accident happened and the link between the responsible person and the patient.

The interviews were analyzed through the *IRAMUTEQ*® program, considering the technique of Content Analysis.⁷ It is pointed out that, in an initial analysis, the program showed a corpus of the study composed of 37 interviews, which was divided into 55 segments of elementary context units (UCE), which presented 466 words or distinct forms and that occurred 1826 times, with an average occurrence frequency of 53.22% per word and an average frequency of 13.58% occurrence per segment. It should be noted that the analysis of the results showed a use of 80.00%

of the total corpus, which is considered a significant result.

The corpus was first studied by means of the descending hierarchical classification, establishing five classes of segments of distinct texts.

The ethical aspects were respected, being the project, of 012435/2016, approved by the Ethics and Research Committee of the Federal University of Alagoas.

RESULTS

Between January 2014 and December 2016, 180 burn victims were hospitalized at the Burns Therapy Center of the State General Hospital, of which 114 were male (63.33%) (Table 1).

It is worth noting that 41.11% of the patients were from Maceió and the remaining patients (58.88%) from 49 municipalities in the State of Alagoas.

Table 1. Age range of patients seen in the GH BU, from January 2014 to December 2016, Maceió (AL), Brazil, 2016.

Age	N	%
Less than 5 years old	112	62.22%
5 to 10 years	35	19.44%
11 to 18 years	33	18.33%
Total	180	100%

It is pointed out in table 2 that, in relation to the most affected bodily regions, the topography of the lesions is generally multiple, with 63.33% of cases being recorded in different regions of the body. In the same table, the length of hospitalization was

related to the degree of burn, and it was evidenced that second-degree burns, associated with third-degree burns, are those that frequently require a longer hospitalization time.⁴

Table 2. Relationship between hospitalization time and the degree of injury of children and adolescents in the GH BU, from January 2014 to December 2016, Maceió (AL), Brazil, 2016.

Hospitalization time (days)	1°	2°	3°	1° e 2°	2° e 3°	Total	%
<10	2	75	6	32	11	126	70.00
10 to 19	1	23	0	10	2	36	20.00
20 to 39	0	7	1	0	3	11	6.11
>or equal to 40	0	1	3	0	3	7	3.88
Total	3	106	10	42	19	180	100.00
%	1.66	58.88	18.00	23.33	10.55	100	

Qualitative data are considered to corroborate the quantitative findings in that they enabled more clarification on accidents and subsidies for preventive and educational actions.

Interviews were conducted with the 37 companions of children hospitalized for burns, from August 2016 to June 2017, of which 83.78% were the mothers of the patients, followed by grandparents (8.1%) and aunts (8.1%).

According to the Brazilian Classification Criteria of the Brazilian Association of Research (ABEP), the most common economic classes among hospitalized patients were the

D and E classes (64.82%), whose average income salary is R\$ 708.19.⁸

It is worth noting that, by the word cloud method, which groups the words and organizes them graphically according to their frequency, the word water was the one that had the highest frequency in the corpus (22 times), followed by the word panela (20 times) , coffee and fire (17 times) (Figure 1). These data are associated with the most frequent etiological agent of these accidents, that is, the scald, which corresponded to 65% of the quantitative data, where the kitchen was informed by the interviewees where most accidents occurred.

Word	Frequency in the corpus
Water	22
Pan	20
Fire, Coffee	17
Brother	12
House	9
GH, Day, Hot	8
Alcohol, Father	7
Floor, Mother, Kettle, Table	6
Kitchen, Just, Pasta, Cup, Leg	5
Tummy, Trash, Cylinder, Bath, Adam's apple, Son, Foot, Stove, People	4
Help, EU, Extension, Hour, Bathroom, Uncle, Arm, Sudden, Ember, Burn, Room, Energy, Finger, Meat	3

Figure 1. Frequency of words from the interviews conducted in the period from August 2016 to June 2017, in the GH BU, Maceió (AL), Brazil, 2016.

Data of the interviews was organized into classes of the text segments of the corpus, which correlate directly and / or indirectly with the characteristics and causes of burns that affected the patients evaluated in the research. It is pointed out that class one contemplated 19.44% of the corpus was denominated "accident site" and is directly related to the occurrence of the event in the home environment.

It is recorded that class two corresponded to 19.44% of the corpus, was named "cause of the accident" and is constituted by the main causal factors or related to the occurrence of burns in the studied children. It is emphasized that words like water, fire, pot and coffee were evident and significant in the results analyzed in this class.

Class three corresponded to 22.22% of the corpus, it was named "environment" and it was related to the room with the highest frequency of accidents, which was the kitchen, being associated with words like kettle and pot.

It is noted that class four contemplated 22.22% of the corpus, denominated "adjuvants" and has, as constitution, words that relate to the accident, such as table and glass, and the presence of the brother in the environment.

It is stated that class five corresponded to 16.67% of the corpus, was named "electricity" and relates basically to accidents that occur with electric energy, associating with the main foci of involvement, which are the finger and the ground.⁹

The relationship between the classes in the dendrogram is shown (Figure 2). The dendrogram is read from left to right. It appears that class four is directly related to classes two and three, which are also, to a lesser degree, related to class one. As expected, class five is presented independently, since it is another type of accident other than scald.

Socioeconomic issues were assessed as relevant to trigger the accident, in which the majority (59.9%) occurred when only one of the caregivers was present and, in a few cases (21.5%), the caregiver was one who did not the parents.¹⁰

Figure 2. Dendrogram of classes of text segments of the corpus coming from interviews from August 2016 to June 2017, GH BU, Maceió (Brazil), Brazil, 2016.

DISCUSSION

It is reported that in childhood and adolescence, burns constitute a potentially serious accident due to their individual and social repercussions. They are shown to be important accidents in Pediatrics, as approximately half of them occur in children and adolescents. It is noticed that burns are the most devastating injuries that the human body can suffer.

It was pointed out, by the analysis of the results of this study, the predominance of accidents in males, which is corroborated by the literature studied.¹¹⁻² It is understood that boys have a greater predisposition to submit to risk games, therefore, they are more exposed to possible accidents, such as burns; this male predisposition can be justified by differences in behavior of each sex, as well as by cultural factors, which give boys more freedom compared to girls.¹³

In relation to the age group, there was a greater frequency of accidents in pre-school children, which may be associated to the characteristics of the child's intense neuropsychomotor development at this stage, which stimulates their curiosity regarding the exploration of the environment in which it lives,¹⁴ allied to the lack of maturity to predict and avoid situations of risk,¹⁵ which makes circulation inside the home more frequent and permeated by risks, if not supervised by an adult.¹⁶

It is stated that about 90% of burns occur inside the house, in addition, they emphasize that the majority of the accidents in pre-school children happens due to scalds, representing more than half of the pediatric hospitalizations.⁵

It is also assessed that the situation of household utensils, often in poor condition and viability, contributes to a possible domestic accident. Hot kettle syndrome is considered to further potentiate possible domestic burns, especially in the kitchen area, and favors injuries to the arms, neck, forearms and thorax.¹⁷

The high frequency of accidents due to liquids heated by the traffic of children in the kitchen and in the vicinity of the stoves can be justified, and these occurrences are caused by the spillage of hot liquids on the body, such as boiling water, cooking oil and beverages, even that quickly, therefore, for children under six years of age, epidermal burns can occur in less than 60 seconds of exposure to water with a temperature above 53° C and within a second, if the water is warmer than 70° C.⁵ On the other hand, burns caused by direct flame can be explained due to the presence of several devices used in the domestic environment that can cause the accident, such as alcohol, kerosene and gasoline.¹⁸

It is emphasized that, in relation to the most affected bodily regions, the topography of the lesions is usually multiple. This characteristic is related to the circumstances

of the accident, since most occur when the child reaches hot liquids on the stove or manipulates flammable materials, increasing the chance of burning various areas of the body. It is observed that the lower limbs were the region most affected alone and this was corroborated by other studies.¹⁹

It is known that the depth of the wound is related to the temperature and duration of contact of the etiological agent with the skin. It is understood that children have the most fragile skin, so light burns can become severe quickly. Similar results, especially among children under two years of age, are identified by epidermal fragility, favoring a greater extension and depth of the lesion.²⁰

It should be noted that, although the study does not mention them, complications are an important issue in assessing the conduct and severity of those involved in the burn accident. It was found that 175 (55%) of a total of 320 patients hospitalized at the Burns Unit of the Clinical Hospital of the University of São Paulo developed infection.²¹ It is noted that in burn accidents, as there is a major involvement of the skin, which is the largest organ of the body, as well as an inextensible barrier against microorganisms and regulates water loss, its breakdown of continuity makes the injured more vulnerable to infections and other comorbidities.²² This idea is reinforced by a study conducted between 2011 and 2012 at the Cristo Redentor Hospital in Porto Alegre (RS), where it was concluded that 54.4% of hospitalized patients developed lesion infection followed by pneumonia and renal insufficiency.²³

It is noticed that the most frequent words in the interviews with those responsible for the children of the present study are related to burn by hot liquids, the kitchen being the place informed by the interviewees where most accidents occurred, which is confirmed by different studies carried out in several countries.²⁴ It is noted that the occurrence of the event in the home environment is a fact since 91.03% of the accidents occur at home and with the presence of the parents in the place.²⁵

It is observed that the environment with the highest occurrence of accidents was the kitchen. It is inferred, in this respect, that many accidents affect poorer citizens, with humbler living conditions and simpler housing. It is known that the kitchen is a place frequently visited by small children because of the lack of space in the other rooms of the residence; in many situations, it is not even possible to define with specific property if there are rooms, since many suffer from burns

live in a simple space, further increasing the transit of children by regions favorable to exposure to burns.²⁶ It should also be noted that the intellectual condition of those responsible may also contribute to a greater chance of burn, with a burn accident being more likely to occur in those environments in which those responsible have a lower level of education and less awareness of the importance of surveillance.²⁷

It is pointed out that most of the families interviewed were of social class D or E, corroborating the fact that there is a higher rate of medical care among children of lower socioeconomic level, and there is a five times greater risk of death among children of class families social security.¹⁶

The assertion that socioeconomic conditions are closely related to propensity for domestic burn accidents is reinforced by asserting that the low economic condition coupled with low educational level, housing precariousness and overcrowding of the domestic environment are factors that increase considerably the risk of domestic burn accidents; in addition, the model and consequences of burns are guided by the housing situation, the age and sex of the child, as well as the psychoemotional development of minors.¹⁵

It is stated that some factors were related as adjuvants in the constitution of the accident. It has been found in previous research that the presence of a younger sibling at home is a risk factor for the occurrence of accidents because of the possibility of one child diverting the mother's attention more than another.²⁸⁻⁹

It is reported that electrical energy was also a factor associated with accidents, although the most common causes of electric burns in children differ from adults, and these injuries typically occur in poorly supervised or unaccompanied children.³⁰ It is also considered that most domestic exposures is low voltage and alternating current of exposed wiring, which causes children to put objects into sockets or bite the cables.⁵

It is noticed that the majority of the companions of the hospitalized children associates the occurrence of the burn to a moment of distraction, that has as consequence an accident that changes all the conjuncture and routine of the family. The importance of child surveillance in risk environments is reinforced, since water scalping is the cause most frequently cited by the caregivers, and preventive factors are applied in these cases. Social issues are assessed as relevant to trigger the accident,

since the presence of the caregiver, be it the parents or not, was involved in the occurrence of the accident.¹⁰

CONCLUSION

It is concluded that infant burns are an important cause of hospital care and hospitalization, in addition to leading to significant emotional and physical repercussions. It is known that the child has a normal curiosity, because he is going through a moment of discovery and knowledge of the world around him, which shows the need for attention on the part of those responsible, which must be doubled due to lack of awareness regarding to the danger associated with children at this age.

It is suggested that, due to the fact that the majority of burn injuries in the age group studied occur in the domestic environment, with the presence of the mother or responsible, that there was a failure in supervision and, consequently, in the prevention, that can be effected with a modification in the place where the child lives together with the family, as well as through educational campaigns through the media, schools and health institutions with the aim of modifying the results presented in this study, reducing the incidence of this aggravation to the health of children and youths.

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