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ORIGINAL ARTICLE

Epidemiological profile of pediatric burn victims in the city of São Paulo

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Abstract

Introduction: Burns injuries are a significant health problem because they cause permanent or long lasting sequelae. **Objective:** To characterize burn injuries, occurring among children and adolescents living in the city of Sao Paulo, and to identify the profile of pediatric patients treated for burn injuries. **Methods:** This is a cross-sectional, quantitative, descriptive and retrospective study. A survey was carried out using data from the Information System for Violence and Accident Surveillance (SIVVA) of the Municipal Health Department of the city of Sao Paulo, where the reports of accidents against children and adolescents (0 to 19-years-old). **Results:** During the study period, there were 416 burn injuries among children and adolescents living in the city of Sao Paulo. The main lesion diagnoses were: degree II burn (41.6%), the body region being more affected by wrist and hand. **Conclusion:** The results of this study showed that there was a higher frequency of burns among boys, preschoolers and the domestic environment. It emphasizes the importance of epidemiological researches in the subject because they can support preventive strategies, especially in the period of childhood and adolescence.

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INTRODUCTION

Accidents represent a public health problem, and are a major cause of morbidity and mortality in children and young adults, in several countries[1].

Studies indicate that the socioeconomic is an aggravating factor for burn accidents[1,2]. The prevalence of this type of accident is high in Brazil, with the main victims being children and adolescents, and we estimate that these cases occur mainly at home[2].

The concept of burn is broad, but it comprises an injury to organic tissues caused by some thermal trauma, which occurs mainly in domestic settings, work environments and suicide attempts[2,3].

According to Nestor[3], burns are a significant health problem, as they cause permanent or long-lasting sequelae, of a physical and/or psychological disorder, compromising physiology, altering body self-image, autonomy and aesthetics of patients, resulting in severe deformities and limiting disabilities, in addition to decreasing the functional capacity to perform daily and work tasks[3].

Studies on burn accidents are necessary, especially in childhood and adolescence, as the treatment of burns is a complex challenge, as this problem remains forgotten by public policies and academic debates[4].

In the Brazilian context, according to Serra et al[5], there are few epidemiological studies on burns in children and adolescents. These studies can generate important information for the implementation of preventive measures against these types of accidents[5].

Although there is convergence in the literature on the characteristics of burns that involve maltreatment, and the publications point to the circumstances of the burn and the presence or not of those responsible at the time of the accident as risk factors to be considered, in this type of accident, published research on the topic has not sufficiently explored these aspects[6].

Thus, this study aimed to characterize burn accidents, which occurred among children and adolescents living in the city of São Paulo, and to identify the profile of pediatric patients treated for burn accidents.

METHODS

This is a cross-sectional study, with a quantitative, descriptive and retrospective approach. We ran a survey using data from the Monitoring Violence and Accidents - Information System (SIVVA) of the Municipal Health Secretariat of the city of São Paulo, where the notifications of accidents against children and adolescents (0 and 19 years old) are recorded through the notification form for suspected or confirmed cases[7].

The inclusion criteria for the study were the records of burn accidents involving children and adolescents from the city of São Paulo, from January to August 2018.

Other variables collected from the database were: age (in years), sex (female or male), burn accident (electric shock, fire and other burns), race/color, education, injury diagnosis, case evolution (referral to services, hospital discharge), place of occurrence (street, home, school, daycare center), disability (physical, mental, visual). After data collection, we processed and tabulated all the data. We based our analysis on descriptive statistics, calculating absolute and relative frequencies.

This research project did not require the approval from the University's Research Ethics Committee, since we used a public domain database, as recommended by the Resolution of the National Health Council (CNS) 466/12.

RESULTS

During the study period, there were 416 burn accidents among children and adolescents living in the city of São Paulo. Among the types of accidents: 98.1% other burns, 0.7% burns by electric shock and 1.2% burns by fire.

As shown in figure 1, burn accidents occur predominantly in males (50.2%); with 49.8% among females.

The age range of the children and adolescents victims of burns was predominantly: 0 to 4 years (46.2%); 15 to 19 years (25.7%); 10 to 14 years (15.1%) and 5 to 9 years (12.7%).

Regarding race/skin color: 45.2% were black and 35.6% white. Data on education: 12.0% had 1 to 3 years of study, 11.5% had 4 to 7 years of study, 9.6% from 8 to 11 years of study.

The accident locations were: 61.3% at the victim's own residence; and 24.3% occurred during the day.

None of the victims had any type of disability, be it physical, hearing, visual or mental.

As shown in Table 1, the main injury diagnoses were: 2nd Degree Burns (41.6%), with the wrist and hand as the most affected body regions; unspecified burns (43.0%).

Regarding the corrosion diagnosis data (1.2%), Corrosions involving 10-19% of the body surface.

The data concerning the case progress: 60.8% were discharged from the hospital; 27.9% were being monitored, 6.7% were hospitalized.

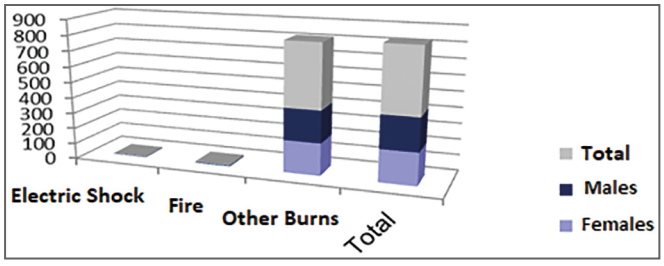


Figure 1. Burn accidents among children and adolescents, according to the type of accident and sex, São Paulo, 2018.

Table 1. Diagnosis of the injuries among children and adolescents victims of burn accidents, São Paulo, 2018.

Injury Diagnosis (ICD-10)	N	f(%)
1st Degree Burn	43	10.3
2nd Degree Burn	173	41.6
3rd Degree Burn	06	1.4
Unspecified Burns	189	45.4
Corrosions	05	1.2
Total	416	100.0

DISCUSSION:

The present study analyzed the accident notification forms from children and adolescents, from 0 to 19 years of age, victims of burns seen from January to August 2018, in urgent and emergency services of the Public Healthcare System (SUS) of the city of Sao Paulo.

According to Takino et al[8], epidemiological studies, based on medical records, report that these accidents are extremely important for better guidance on healthcare promotion practices, such as prevention campaigns, and improving the cost-effectiveness ratio in caring for burns[8].

Knowledge on the prevalence and associated factors in pediatric burn patients is relevant, since these traumas are considered a serious public health problem. When analyzing the data from the studied period, there was a higher percentage of care to male burn victims (50.2%)[9].

The findings from this study are in accordance with other epidemiological studies[8,9,10], there is usually greater cultural freedom for boys, a greater availability of boys for risky plays, and therefore, greater exposure for the causal factors of burns. In addition, the child's neuropsychomotor development between one and two years is quite intense, marked by enthusiasm and curiosity in exploring the environment in which he/she lives[8,9,11].

The demographic characteristics of pediatric burn accidents presented in this study corroborate with other studies[9,10]: 46.2% of the patients were of preschool age, the main place of the accident was at home (61.3%), stressing potentially unsafe environments. The burn accidents occurred during the day, it could be inferred that this is the period of greatest children activity[11].

The presence of an adult in the residence does not prevent the accident from happening, perhaps due to the lack of knowledge on how to avoid it or even because he/she is not performing direct supervision, that is, parents who take on other activities simultaneously with the care of the child[11].

The high incidence of second-degree burns (41.6%) found in this study corresponds to the literature[11,13]. Second-degree burns are described in the literature as being the most painful, representing an aggravating factor for possible psychological sequelae in children and adolescents[12,14].

The body regions most affected by burns were the upper limbs (UL), mainly the wrist and hand; which corroborates the findings of other studies[14,15,16].

A study by Santos[16] showed that the chest and upper limbs were the most affected segments, in relation to other regions of the body, with prevalence of 2nd degree burns; other studies report similar findings[16].

The present study showed that 60.8% of the burn cases notified were immediately discharged. This data draws attention to the fact that many burns do not require hospitalization and end up receiving only care instructions in the emergency departments[17,18].

Some authors associate burns in which the patient was discharged early with benign conditions, but these did not take into account the morbidity of the injuries, such as sequelae[18,19]. These limitations are described in several studies, reporting about variable changes in the quality of life of these patients, with reduced ability to perform certain personal functions and even psychological problems[19].

It is worth mentioning that some studies point to deficiencies in filling out the medical records and the patient care notification forms, which turns unfeasible the analysis of a series of data, among them: accident site, child supervision at the time of the accident, time elapsed between the accident and the arrival at the hospital, socioeconomic conditions of the family, education of the parents or guardians, percentage of body area affected by the burn, specific injury mechanism and detailed description of the surgical procedure[17,20].

Moraes et al[21] emphasize the importance of epidemiological research on the subject as they can support preventive strategies, especially during childhood and adolescence. This age group is more exposed to major complications with a consequent increase in rates of morbidity and mortality from preventable causes[21].

Despite the limitations of this study, the data presented is important for characterizing the profile of these victims. The improvement in the quality of medical documentation, being able to contribute for the improvement and quality of the services provided to the population. As well as, for future studies, to promote better strategies to reduce the incidence of burns through healthcare policies and the implementation of educational programs[17].

FINAL REMARKS

The results of this study showed that there was a higher frequency of burns among males of preschool age. Accidents occur during the day and at home.

Burns are an important condition and are part of every medical professional's daily life. It represents a large public expenditure, both in acute and chronic treatment and in the rehabilitation of these patients.

It is important to stress that epidemiological studies to characterize burn injuries in pediatric patients are necessary to guide the making of public health policies and to direct

prehospital, hospital and rehabilitation care. Thus, serving as guidelines for those responsible for making the home environment safe.

Burn accidents are considered preventable; therefore, investment in primary health care with campaigns and education in schools and in Basic Health Units should facilitate access to information and avoid the occurrence of most of these accidents.

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