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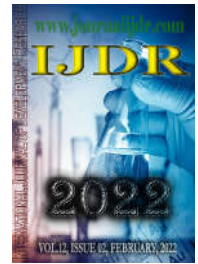
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RESEARCH ARTICLE

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CLINICAL FEATURES AND RELATED FACTORS OF CHILD BURN VICTIMS

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ABSTRACT

The objective was to evaluate the main clinical characteristics and related factors of children who were burned hospitalized in a Burn Treatment Center in the city of Fortaleza-Ceará-Brazil. Documentary, retrospective study with quantitative approach. Carried out in a Burn Treatment Center, with analysis of 155 children's records. For data collection, identification data, burn classification, burned body surface, hospital stay, related factors, nursing diagnoses, and decision-making in the face of clinical conditions were analyzed. It was evidenced that 59.4% of the children were male, 61.3% from the interior of the state. Regarding clinical characteristics, it was found: 69.7% of burns were due to scalding, 69.0% classified as 2nd degree, affecting the limbs in 76.2% of the cases, with an average of 15% of the burned body surface area. The mean length of hospital stay was longer than 10 days. As decision-making, balneotherapy/mechanical debridement and occlusive dressing were performed in 74.2%, and skin grafting in 8.4%. The risk of impaired skin integrity was the most prevalent nursing diagnosis in 100% of cases. The identification of clinical characteristics and related factors becomes fundamental for a systematized, with the planning of actions to reduce the risks and complications related to burn.

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INTRODUCTION

Burns are skin lesions caused by direct or indirect action by chemical, thermal, electrical, or radioactive agents. Which can affect tissues that line the body, causing partial or total destruction of the skin (Magnani, Sassi, Andrade; 2019). For better understanding, burns are divided into 1st, 2nd, and 3rd degrees, carbonization is considered a 4th degree burn (Gashti et al; 2021). In Brazil, burns represent the fourth cause of death and hospitalization due to accidents of children and adolescents up to 14 years old (Amador, Mazarakis, Felzemburgh, 2021). Children, due to curiosity and physical and cognitive immaturity, have a high susceptibility to the occurrence of accidents (Almeida, 2017; Swiderski, Takemoto, 2019). It is observed that burns involving children occur mainly in the domestic scenario, which is mostly associated with thermal agents related to the handling of boiling liquids and child violence (Bezerra et al; 2020). In the care of burned children admitted to emergency units, nurses play a

relevant role in immediate and quality care, with a holistic approach, taking into account not only the patient but also his/her family that will be present in the daily care (Marques et al; 2019). Therefore, the actions performed by the nursing team need to be organized to meet the needs of patients and their families. Part of this care is the development of the nursing work process, to plan, execute, control, and evaluate the actions of care for children and their families and/or caregivers. In this research, to carry out the nursing work process, we highlight the execution of the Nursing Diagnosis (ND), which is a clinical judgment about the responses of the individual, family, or community, to real health problems or potentials or vital processes. In this context, the following question arose: What are the main defining characteristics and related factors of the child who suffered burns? It is believed that the resolution of this questioning favors the identification and deepening of nursing knowledge about the main causes (related factors) and clinical manifestations (defining characteristics), present in children's victims of burns, to enable

comprehensive care for the recovery of the lesion, prevention of other burns and guidance of strategies for the promotion of health to the child and his family. This study aimed to evaluate the main clinical characteristics and related factors of the burn victim child admitted to a Burn Treatment Center in the city of Fortaleza-Ceará-Brazil.

MATERIALS AND METHODS

Documentary, retrospective, descriptive study with a quantitative approach. The research was carried out with the children hospitalized at the Burn Treatment Center (BTC) of a North and Northeast Reference Hospital in the aid of victims of high complexity traumas in the city of Fortaleza-Ceará-Brazil. The population consisted of 155 medical records of children hospitalized in the BTC from April 2017 to April 2018. The sample consisted of 155 medical records based on the following inclusion criteria: patients, under 12 years of age, hospitalized in the BTC who were burned and permanently in the BTC for at least 24 hours. To perform data collection, a form divided into three sections was used. The first section containing the sociodemograph. The second section consisted of clinical aspects of the child. For the third section, we sought to point out the main ND registered by the nurses who worked at the study site, from the Systematization of Nursing Care (SNC) in the BTC. The data were tabulated in Microsoft Excel 2017, which is organized into tables, tables, and graphs. The analysis was performed through descriptive statistics of the main defining characteristics and related factors present in the child victim of burns, following the recommendation of the literature pertinent to the theme. The study respected the ethical and legal aspects of Resolution 466/2012 (Brasil, 2012). [10] and was approved by the Ethics and Research Committee under opinion No. 2650829.

RESULTS

When analyzing the defining characteristics (clinical manifestations), related factors, complications, and nursing diagnoses, the present study had evidence, the sociodemographic data: predominance of 59.4% (N=92) of male children, that corresponded to 40.6% (N=63) of the cases.

Table 1. Clinical profile of children attended at the Burn Center of a Hospital of the City of Fortaleza-Ceará, 2018

Clinical characteristics	N	%
Hospitalization Time		
< 24 hrs	15	9,7
1-5 days	46	29,7
6-10 days	31	20,0
> 10 days	63	40,6
Causes of injuries		
Scalds	108	69,7
Fire or Ember	17	10,9
Electricity	14	9,0
Hot surface	8	5,2
Chemical Agents	6	3,9
Solar Radiation	2	1,3
Burned Body Surface		
1%-15%	112	72,3
16%-25%	32	20,6
26%-50%	10	6,5
> 50%	1	0,6
Degree of Injury Depth		
1st Degree	5	3,2
2nd Degree	107	69,0
3rd Degree	43	27,8
Decision Making		
Mechanical debridement with an occlusive dressing	115	74,2
Autolytic/chemical debridement with or without grafting	16	10,3
Skin grafting	13	8,4
Other Procedures (shredding and antibiotic therapy)	6	3,9
Simple dressing	4	2,6
Amputation	1	0,6
Total	155	100

A high rate of children from zero to three years of age was observed with 61.9% of the cases (N=96). The majority 61.3% (N=95) came from the interior of the State of Ceará. As for the place where the burns occurred the most, the residence was the most referenced, with 86.5% (N=134). Regarding the clinical, table 1 shows that the majority of 40.6% (N= 63) of the number of days of hospitalization was more than ten days. The main cause of the injury was burn by scalding with 69.7% (N= 108), followed by 10.9% (N= 17) of children victims of fire/ember, solar radiation was being the cause of lower prevalence, only 1.3% (N= 2) cases. The percentage of body surface burned more frequently among children was 1-15%, corresponding to 72.3% (N= 112). As for the degree of depth of the lesion, 69.0% (N= 107) were due to second-degree burns, in Figure 1.



Figure 1. Affected body surface of children attended at the Burn Center of a Hospital of the City of Fortaleza-Ceará, 2018

Table 2. Nursing Diagnosis, Related Factors and Defining Characteristics of children attended at the Burn Center of a Hospital of the City of Fortaleza-Ceará, 2018

Nursing Diagnoses	N
Risk Factors or Related Factors	
Risk of impaired skin integrity related to	
- Extremes of age;	155
- Impaired Physical Mobility;	
- Altered nutritional status;	
- Mechanical factors (abrasive forces, pressure, containment);	
- Traumatic injury.	151
Pain-related to	
- Invasive Procedure;	145
- Trauma.	
Characterized by a verbal report of pain	145
Risk of infection related to	
- Invasive procedure;	
- Hospital Environment;	138
- Tissue Destruction.	
Unbalanced nutrition related to	138
- Traumas;	
- Psychological factors	101
Characterized by reports of inadequate food intake, lower than RDA. (Recommended Dietary Allowance)	
Risk of Electrolyte imbalance related to	
- Treatment-related side effects (e.g. medicines, drains);	101
- Volume of deficient liquid;	
- Excessive fluid volume.	
Neurological disorders related to	38
- Trauma;	
- Cognitive impairment	

Since most children underwent one or more surgical procedures/treatments: 74.2% (N= 115) required mechanical debridement with an occlusive dressing, and 10.3% (N= 16) required self-lytic debridement with skin grafting. A predominance of 31% (N=95) of children affected in lower limbs and/or genitalia is evident, followed by 25% (N=76) in the upper limbs.

Chart 1. Nursing Interventions for children attended at the Burn Center of a Hospital of the City of Fortaleza-Ceará, 2018

Nursing Intervention
<p>Risk of impaired skin integrity:</p> <ul style="list-style-type: none"> - Relieve the pressure areas used cushions; - Use asepsis in all aspects of patient care, inspect the wound for signs of infection, purulent drainage or staining, monitor leukocyte count, culture result, and sensitivity; - Measure risk for pressure injury according to the Braden Scale; - Position the patient carefully, to avoid flexed positions in the burned areas, implement a range of motion exercises several times a day; - Perform decubitus change of 2/2h. <p>Pain:</p> <ul style="list-style-type: none"> - Evaluate and record pain intensity and location according to numerical pain scale; - Provide positioning that promotes comfort and pain relief; - Offer analgesic as prescribed approximately 20 minutes before the painful process, provides tranquility and emotional support. <p>Risk of infection:</p> <ul style="list-style-type: none"> - Clean the wounds daily, perform the wound dressing according to the prescription, avoid pressure, infection, and mobilization of skin grafts; - Observe thorax burns; - Monitor and register SSVV; - Monitor and note phlogistic signs of surgical wound, venous access, drains, and probes; - Exchange probes (SNG/SOG/SNE/SVD) and register; - Perform balneotherapy; - Renew dressing when necessary. <p>Unbalanced nutrition:</p> <ul style="list-style-type: none"> - Register acceptance of the diet; - Administer assisted feeding; - Start feeding in small amounts and evolve slowly; - Check probe positioning and gastric residues before enteral diet; - Administer water after each diet. <p>Risk of electrolyte imbalance:</p> <ul style="list-style-type: none"> - Offer the prescribed diet; - Register gastric residue; - Keep an accurate record of ingestion and disposal.

The results related to nursing diagnoses are presented in Table 2, with more frequency:

Risk of skin integrity impairs related to impaired physical mobility, altered nutritional status, and mechanical factors in 155 medical records, followed by pain related to an invasive procedure and trauma characterized by a verbal report of pain with 151 records. As for Nursing interventions related to priority diagnoses, determined by nurses in the records under study, it is possible to verify, in Chart 1, that there were at least two interventions related to skincare.

DISCUSSION

In this study, the highest incidence of burns caused by scalding occurred in males, aged 0-3 years, from the interior of the State and the place of involvement was the residence. Being data concordant with another research conducted in another State of the Brazilian Northeast (Alagoas) (Santa Maria *et al*; 2019). The predominance of males among burn victims can be explained because boys tend to behave more actively than girls (Pereira *et al*; 2019; Moulin *et al*; 2018). The length of hospitalization obtained in this study was longer than 10 days, information consistent with findings of other authors, in which it is evidenced that the duration of hospitalization time is related to the degree of burn, and those of the second and third-degree require a longer hospitalization period (Correia *et al*; 2019). Regarding the causes, the scalding was responsible for half of the hospitalizations and usually occur when pulling hot pots on the stove, stirring with lamps, candles, and others. These accidents most often compromise the upper limbs (Amaral *et al*; 2018; Simas, Souza (a), 2019; Moraes *et al*, 2018), contradicting the findings of the present study and another study conducted in northeastern Brazil in which there was a predominance of lower limbs and genitalia (Santa Maria *et al*; 2019). Speaking of the degree, most children presented second-degree burns, a finding similar to that of other studies (Rodrigues *et al*; 2019; Simas, Souza (b), 2019). Balneotherapy, also called "anesthetic bath" is a procedure performed on stainless steel table for cleaning wounds, especially burns in which the application of antiseptic solutions is used and brushing the entire body of the patient. Small surgical debridements can be performed, together with topical therapy reduce the incidence of sepsis triggered by infection of

the burned area and, consequently, the mortality of these patients, due to the reduction of colonization of the lesion (Moreira, Moreira, Santos; 2018). In nursing care for burned patients, it is important to develop quality care, contributing to minimize stressors that affect patients with burns, from aggressive bodily injuries, high complexity therapeutic procedures, and prolonged hospitalization (Gonçalves *et al*; 2020). Among the diagnoses presented in the present study and others, pain is highlighted as a diagnosis of great relevance, since the performance of procedures such as bathing, dressing, and surgery was pre-sented as procedures that cause more pain, in addition to the burning pain itself (Morais *et al*; 2018). It should be considered that pain is the 5th vital sign considered complex and should be treated individually according to the needs of each individual (BARROS, Luiz, Mathias; 2019). Nurses should establish the priorities of the actions. SNC is one of the means available to nurses to apply their technical-scientific and human knowledge in the care of the individual, characterizing their professional practice, collaborating to define their role (Morais *et al*; 2018). It is proposed the situational recognition of the clinical characteristics and factors related to burns in children as a possibility for the use of educational strategies and promotion of parental education to prevent domestic accidents and even complications related to burns.

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