

Bacterial infections of the skin and soft tissues in patients hospitalized in the medical clinic unit

Infecções bacterianas da pele e tecidos moles em pacientes hospitalizados em unidade de clínica médica

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ABSTRACT | OBJECTIVE: The objective was to understand the profile of patients hospitalized for skin and soft tissue infections in a medical clinic unit. **MATERIALS AND METHODS:** Descriptive and documentary study, with a quantitative approach, carried out in a public hospital in a city in northeastern Brazil. The sample consisted of 50 medical records of hospitalized patients, evaluated from September to November 2019. The analysis was performed using descriptive statistics. **RESULTS:** The average age was 64 years ($\pm 9,2$ years). Prevalent women (54%), single (40%), illiterate (72%), retired (66%) and who had clinical comorbidities (68) were prevalent. The average hospitalization time was 10 days. Erysipelas was the most common skin infection was (44%), the lower limbs were the most site (86%), 66% of patients required dressings that were changed daily. **CONCLUSIONS:** Skin infections led to a hospitalization period equivalent to 10 dias, especially in elderly women, resulting in costs and healthcare costs.

KEYWORDS: Skin. Nursing. Wound Infection. Bacterial Infections.

RESUMO | OBJETIVO: conhecer o perfil de pacientes hospitalizados por infecções da pele e tecidos moles em unidade de clínica médica. **MATERIAIS E MÉTODOS:** Estudo descritivo e documental, com abordagem quantitativa, realizado em um hospital público de uma cidade do nordeste brasileiro. A amostra foi composta por 50 prontuários de pacientes hospitalizados, avaliados no período de setembro a novembro de 2019. A análise ocorreu por meio de estatística descritiva. **RESULTADOS:** A idade média foi de 64 anos ($\pm 9,2$ anos). Prevalenteu mulheres (54%), solteiras (40%), analfabetas (72%), aposentadas (66%) e que possuíam comorbidades clínicas (68%). O tempo médio de hospitalização foi de 10 dias. Erisipela foi a infecção cutânea mais frequente (44%), os membros inferiores foi o local mais afetado (86%), 66% dos pacientes necessitaram de curativos com troca diária. **CONCLUSÃO:** As infecções da pele levaram a um período de hospitalização equivalente a 10 dias, principalmente em mulheres idosas, implicando em custos e em cuidados de saúde.

PALAVRAS-CHAVE: Pele. Enfermagem. Infecção dos ferimentos. Infecções bacterianas.

1. Introduction

Skin and soft tissue infections (SSTI) span a broad spectrum of conditions ranging from superficial skin abscesses to presentations with extensive involvement, involving necrosis of soiled structures and sepsis-related organ failure.¹

There are numerous types of SSTI, such as impetigo, cellulitis, boil, and erysipelas, with variations in clinical presentation and anatomical location.² Evidence suggests the predominance of *Staphylococcus aureus*, including methicillin-resistant strains (MRSA), *Streptococcus pyogenes*, and other β -hemolytic streptococci, as causative agents.³

SSTIs are frequent reasons for seeking outpatient and hospital medical care. It is estimated that 12-40% of the cases observed in the emergency room will result in hospitalization and 0.7% will require intensive care units.⁴ In complicated infections, sepsis occurs in 4-8% of cases⁵, which require early initiation of antimicrobial therapy, as an essential measure to improve the clinical picture.¹

The treatment of SSTIs requires interventions shared by the health team. Concerning nursing, it is imperative that care, including the dressing of skin lesions resulting from the infectious process, be based on scientific evidence to guide the assertive choice of appropriate procedures and materials, aiming to optimize infection control and skin healing.^{6,7}

Knowing the sociodemographic and clinical profile of patients affected by SSTI is essential for clinical decision-making and systematization of care, given the gap in the Brazilian literature on the subject. In addition, such data collection allows health services to outline indicators and improve therapeutic conduct aimed at these patients. Thus, the objective of this study was to determine the profile of patients hospitalized for skin and soft tissue infections in a medical clinic.

2. Materials and method

This is a descriptive and documentary study, carried out in a municipal public hospital, located in the city of Quixeramobim, Ceará, Brazil.

The population of study was composed of medical records of patients hospitalized with a medical diagnosis of SSTI at the medical clinic unit. The sample consisted of 50 medical records of patients intentionally selected during the data collection period. The inclusion criteria were: having a medical diagnosis of SSTI and being over 18 years of age. Medical records with incomplete information that made data collection unfeasible were excluded.

Data collection took place from September to November 2019, using an adapted form^{8,9} containing the following variables: gender, age, marital status, education, occupation, medical diagnosis, length of hospital stays, clinical comorbidities, physical mobility, impaired skin integrity, use of intravenous antibiotics, number of lesions, site of lesions, signs and symptoms associated with the lesion and daily change of dressing and products used in the lesions. The main researcher made daily visits to the hospital unit, from Monday to Friday, without interfering with the work routine of the health professionals.

The data were organized in a spreadsheet built in the Excel® 2020 program, based on the variables of the form. Subsequently, the data were submitted to a statistical analysis using the EPI INFO 7.0 program, using descriptive statistics, discussed according to the literature pertinent to the theme.

The research respected all ethical aspects, based on Resolution No. 466/12, of the National Health Council.¹⁰ The project was sent to the Research Ethics Committee (REC-CEP) of the Catholic University Center of Quixadá and was approved under CAAE number: 08344919.1.0000.5046.

3. Results

The study included 50 patients hospitalized with a diagnosis of SSTI, aged between 18 and 90 years, with a mean age of 64.1 years (± 9.2 years). Table 1 shows the distribution of patients with SSTI, according to sociodemographic characteristics.

Table 1. Distribution of patients with SSTI according to sociodemographic characteristics. Quixeramobim, Ceará, Brazil, 2019

Variables	N	%
Sex		
Female	27	54
Male	23	46
Marital status		
Single	20	40
Married	17	34
Widower	11	22
Divorced	1	2
Stable union	1	2
Schooling		
Illiterate	36	72
Elementary school	11	22
Middle school	2	4
Higher education	1	2
Occupation		
Retired	33	66
Works	12	24
Unemployed	5	10

Source: the authors (2019).

Table 2 shows the distribution of patients with SSTIs, according to clinical characteristics.

Table 2. Distribution of patients with SSTIs according to clinical characteristics., Quixeramobim, Ceará, Brazil, 2019

Variables	N	%
Medical diagnosis		
Erysipelas	24	48
Infected wound	15	30
Cellulite	4	8
Abscess	4	8
Staphylococcus	2	4
Streptococcal disease	1	2
Length of hospital stay		
1 to 7 days	45	90
7 to 10 days	1	2
10 to 15 days	4	8
Comorbidities		
Yes	34	68
No	16	32
Types of medical comorbidities		
Diabetes mellitus	24	48
Systemic arterial hypertension	21	42
Congestive heart failure	02	4
Chronic kidney disease	01	2
Skin cancer	01	2
Physical mobility		
With help	27	54
No help	23	46
Impaired skin integrity		
Yes	35	70
No	15	30
Use of intravenous antibiotic		
No	0	0.0
Yes	50	100

Source: the authors (2019).

Table 3 shows the distribution of patients with SSTIs, according to the characteristics of the skin lesions.

Table 3. Distribution of patients with SSTIs according to the characteristics of the skin lesions. Quixeramobim, Ceará, Brazil, 2019

Variables	n	%
Number of injuries		
One	46	92
Two	3	6
Three	1	2
Injury site		
Members	43	86
Face	3	2
Head	1	2
Neck	1	6
Trunk	1	2
Buttocks	1	2
Signs and symptoms associated with the injury		
Pain	43	86
Redness	47	96
Odor	40	80
Exudate	38	76
Daily dressing change		
Yes	34	66
No	16	34
Products used in injuries*		
Oil based on essential fatty acids	36	72
Silver sulfadiazine 1% cream	27	54
Iodopovidona PVPI tópico	4	8
Collagenase pomade	1	2

*Some patients used more than one product.
Source: the authors (2019).

4. Discussion

Knowledge of the profile of patients hospitalized for SSTI in a medical clinic unit, as well as the recognition of wound infection and associated complications in its initial phases, is a priority, as it allows preventive measures and early interventions to be planned and implemented by nurses, aiming to improve quality of life and reduce patient morbidity and mortality.^{11,12}

With the analysis of the medical records, it was observed that the sociodemographic profile of patients with SSTI was formed by women, elderly, single, illiterate, and retired, corroborating another study.¹³ Opposite results were evidenced in a study conducted in 2017, in which there was a predominance of males (59.6%), aged between 19 and 59 years (56%).¹⁴

Although the type of clinical comorbidity has not been explored in depth, it is emphasized that the presence of SSTI is common in the elderly, due to the propensity to conditions such as diabetes, cardiovascular diseases, liver and kidney diseases, in addition to having an increased risk for clinical complications that require hospitalization.^{15,16}

The high prevalence of illiteracy among patients with SSTI was highlighted. It is known that this condition is a factor that hinders adherence to drug treatment.¹⁷ In patients with SSTI who do not require hospitalization or are eligible for early discharge, care is transferred to the outpatient setting and requires patient adherence⁷, which may be impaired by lack of or low level of education.

SSTIs include a wide variety of bacterial infections of the skin and its structures, such as erysipelas, cellulitis, wound infections, and severe skin abscesses. As evidenced in the study, erysipelas, followed by an infected lesion, were the most common medical diagnoses.¹⁵

The length of hospital stay of patients with SSTI is related to empirical antibiotic therapy and the results of the infection.³ Hospitalization is indicated for those who require intravenous antibiotics, more complex care, or specific treatment for concomitant health problems. Inpatients have better adherence to medication, hydration, supportive care, limb

elevation, and fever control than those who undergo outpatient treatment.¹⁶

Clinical comorbidities such as diabetes mellitus and systemic arterial hypertension were the most commonly identified in the patients. Such conditions, in addition to peripheral vascular disease, cardiovascular disease, chronic kidney disease, and dialysis dependence, are considered a risk factor for SSTI, especially those caused by *methicillin-resistant Staphylococcus aureus* (MRSA).^{1,3}

SSTIs can affect any part of the body, but they occur most commonly on the arms and legs, and rarely, on the neck or face.^{2,11} Most patients had impaired ambulation, especially in nursing developments, due to the location of the skin lesion in the lower limbs.

The record of impaired skin integrity was identified, indicating the need for dressings. Nursing plays a significant role in the care of individuals with wounds. To this end, nurses must have clinical and technical knowledge to plan and implement the care of patients with skin lesions.¹⁸

All patients were using intravenous antibiotics, but the duration of treatment was not indicated. In these patients, accurate diagnosis and identification of risk factors for multidrug-resistant pathogens are key elements for appropriate therapy. Careful evaluation of antibiotic therapy after 48-72 hours is critical to recognize patients with treatment failures.¹⁹

A significant percentage of patients with only one lesion affecting the limbs was observed, according to other studies.^{6,13,14} The signs and symptoms associated with the skin lesion were pain, redness, odor, and exudate, as described in the literature.^{1,16}

The record of daily dressing changes was common among the patients. However, it was found that the nursing notes and evolutions did not contain more detailed information, such as the duration of the lesion, size, depth, perilesional skin conditions, borders, tissue present in the lesion bed, and characteristics of the exudate. This finding was evidenced by another study and requires nurses to adopt the nursing process in the systematization of care for patients with wounds.²⁰

Wound care is continuous and requires technical and scientific knowledge from nurses. In addition, care must be implemented through institutional protocols.²⁰ Brazilian studies have shown that nurses have low knowledge about wound assessment and treatment.^{6,21}

The most commonly used products in the lesions were Essential Fatty Acid (EFA) oil and 1% silver sulfadiazine ointment. AGE is widely used for the treatment of skin lesions in Brazil.²⁰ Other studies indicate that investigations on the efficacy of AGE in wound healing have methodological weaknesses, which do not allow conclusions about the efficacy of the product, and that further studies are needed.^{22,23}

The ointment with 1% silver sulfadiazine is indicated for wounds caused by burns or that need antibacterial action. An international guideline on the prevention and treatment of pressure injuries recommends that the use of silver be for a limited time, due to its toxicity to keratinocytes and fibroblasts and indicates that more studies are needed.²⁴

Topical povidone-iodine PVPI was used in the skin lesions. This product is an antiseptic with extensive coverage, with microbicidal operation and low residual activity. When left on the skin for a long period, it can trigger severe contact dermatitis.^{24,25} The fluids used to clean the skin lesions were not recorded in the medical records.

The limitations of the study were the scarcity or incomplete record of fundamental information on the treatment of SSTI, as well as the dressings performed.

5. Conclusion

Knowledge of the profile of patients hospitalized for SSTI in a medical clinic unit showed greater involvement in women, elderly, single, illiterate, and retired; clinically, due to erysipelas requiring a long period of hospitalization, due to the common

presence of clinical comorbidities, with physical mobility that needs help and impaired skin integrity, which implied the use of intravenous antibiotics, dressing changes and use of products on the lesion.

The need for a care plan aimed at patients with SSTI was identified, based on the nursing process, and with an adequate record of the care provided. The importance of training nurses on the evaluation and treatment of skin lesions resulting from SSTI is emphasized.

In this context, new studies are essential to provide a theoretical basis for providing safe and quality care for these patients, as well as allowing the comparison between national and international data.

Author contributions

The authors declared that they had made substantial contributions to the work in terms of the conception or design of the research; the acquisition, analysis or interpretation of data for work; and the writing or critical review of relevant intellectual content. All authors approved the final version to be published and agreed to take public responsibility for all aspects of the study.

Conflicts of interest

No financial, legal, or political conflicts involving third parties (government, private companies and foundations, etc.) were declared for any aspect of the submitted work (including but not limited to grants and funding, advisory board membership, study design, manuscript preparation, statistical analysis, etc.).

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