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PRESSURE ULCER IN INTENSIVE THERAPY UNIT: EPIDEMIOLOGICAL STUDY

ÚLCERA POR PRESSÃO EM UNIDADE DE TERAPIA INTENSIVA: ESTUDO EPIDEMIOLÓGICO

ÚLCERA POR PRESIÓN EN UNIDAD DE TERAPIA INTENSIVA: ESTUDIO EPIDEMIOLÓGICO

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ABSTRACT

Objective: to analyze the clinical profile of patients with and without pressure ulcer. ***Method***: this is a prospective, longitudinal study with a quantitative approach developed in an Intensive Care Unit of a private hospital in Curitiba (PR), Brazil. ***Results***: the population consisted of 99 participants, seven developed pressure ulcers, 87.7% (n = 6) classified as high risk, 57.1% (n = 4) were older than 70 years old, 71.4% (N = 5) were male, 57.1% (n = 4) were hospitalized for neurological disorders, with a mean time of 15.2 days, 57.1% (n = 4) had at least two PUs, 54.5% (n = 6) were of category II, 36.3% (n = 4) in the sacral region and 55.5% (n = 5) appeared between the sixth to tenth day. ***Conclusion***: these results enabled to know the profile of the participants and contribute to the formulation of clinical guidelines to reduce this condition. ***Descriptors:*** Pressure Ulcer; Intensive Care Units; Epidemiology; Nursing.

RESUMO

Objetivo: analisar o perfil clínico dos pacientes portadores e não portadores de úlcera por pressão. ***Método:*** estudo prospectivo, longitudinal, de abordagem quantitativa, desenvolvido em um em uma Unidade de Terapia Intensiva de um hospital privado de Curitiba (PR), Brasil. ***Resultados:*** a população constituiu-se de 99 participantes. Sete desenvolveram úlcera por pressão, 87,7% (n=6) foram classificados como alto risco, 57,1% (n=4) apresentavam idade superior a 70 anos, 71,4% (n=5) do sexo masculino, 57,1% (n=4) foram internados por alterações do sistema neurológico, com tempo médio de 15,2 dias de permanência. 57,1% (n=4) apresentavam no mínimo duas UP, 54,5% (n=6) eram de categoria II, 36,3% (n=4) na região sacra e 55,5% (n=5) surgiram entre o sexto a décimo dia. ***Conclusão:*** tais resultados possibilitaram conhecer o perfil dos participantes e contribuem para formulação de diretrizes clínicas a fim de reduzir este agravo. ***Descritores:*** Úlcera por Pressão; Unidades de Terapia Intensiva; Epidemiologia; Enfermagem.

RESUMEN

Objetivo: analizar el perfil clínico de los pacientes portadores y no portadores de úlcera por presión. ***Método:*** estudio prospectivo, longitudinal, de enfoque cuantitativo, desarrollado en una Unidad de Terapia Intensiva de un hospital privado de Curitiba (PR), Brasil. ***Resultados:*** la población fue de 99 participantes, siete desarrollaron úlcera por presión, 87,7% (n=6) clasificados como alto riesgo, 57,1% (n=4) presentaban edad superior a 70 años, 71,4% (n=5) del sexo masculino, 57,1% (n=4) se internaron por alteraciones del sistema neurológico, con tiempo medio de 15,2 días de permanencia, 57,1% (n=4) presentaban lo mínimo dos UP, 54,5% (n=6) eran de categoría II, 36,3% (n=4) en la región sacra y 55,5% (n=5) surgieron entre el sexto a décimo día. ***Conclusión:*** tales resultados posibilitaron conocer el perfil de los participantes y contribuyen para formulación de directrices clínicas a fin de reducir este problema. ***Descriptores:*** Úlceras por Presión; Unidades de Cuidados Intensivos; Epidemiologia; Enfermería.

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INTRODUCTION

In 2016, at the Consensus Conference held in Chicago, United States of America (USA), the term pressure ulcer (PU) has been redefined for pressure injury (PI), localized lesion on the skin and/or underlying tissue, usually on a bone prominence, or related to medical devices, as a consequence of the pressure or combination with the shearing, considering other factors that affect tissue tolerance, such as nutrition, microclimate, perfusion, comorbidities and the conditions of the tissue itself.[1] Although this new definition, such a term has not yet been incorporated into the Descriptors in Health Sciences (DeCS) And Medical Subject Headings (MEsh).

They are classified according to tissue impairment into four main categories: Category I, presents as unbleachable erythema, changes in skin color, pain, edema and heat; Category II, the partial loss of skin thickness; Category III, total loss of skin thickness and category IV, total loss of tissue thickness with bone, tendon and muscle exposure. Two additional categories include the presence of an unclassifiable lesion, as well as a suspicion of deep tissue injury, both with indeterminate depth.[2]

PU represents a significant global health problem, it is a chronic wound with frequent recurrence and represents a significant source of pain and distress for the individuals who develop the injury, presenting high associated operating costs, plus the emotional impact and suffering of the patient - perceived as intangible costs.[3]

Its triggering is complex because it involves intrinsic factors such as age, comorbidities, mobility deficit, nutritional status, lowering of consciousness level, and extrinsic factors such as pressure and shear.[4]

International epidemiological studies have shown a prevalence of 15% (2.2-35.5%), 16% (4-37%) and 25% (0,04-42,7%) in hospitals in Denmark, Ireland and Sweden. And incidence of 1.8% (1.4-2.7%), 11% (8-14.4%) and 20% (3.1-49%), respectively.[5] In Germany, the prevalence was 1.21% (n=2971) and the incidence of 0.78% (n=1914) in 2007 to 2011.[6] A multicenter cross-sectional study in Chinese hospitals identified prevalence rates of 1.58% (0.94-2.97%) and incidence of 0.63% (0.20-1.2%).[7]

In Brazil, the incidence of PU in hospitalized patients in different sectors reaches 16.9%.[8] These data range from 22.2% to 41.2% in the Intensive Care Unit (ICU) due to the complexity of this population.[4,9-11]

In the intensive care setting, there is a greater possibility of PU development in critically ill patients with hemodynamic instability, confined to bed, decreased mobility, oxygenation and perfusion, and excessive numbers of hard devices and technologies that hamper prevention strategies. It is emphasized that prevention is relevant for clinical practice and nursing care.[4,12]

As part of the preventive measures, the recommended risk assessment is highlighted.[2] Scales such as Braden (BS) include the assessment of the intrinsic and extrinsic risk factors for PU development. It consists of six subscales for evaluation: sensory perception, moisture, activity, mobility, nutrition, friction, and shear. The total score varies from 6 to 23 points, with scores equal or less than 9 indicate very high risk, between 10 and 12 are high risk, 13 to 14 are moderate risk, 15 to 18 are low risk, and 19 to 23 suggest a lack of risk.[13]

Thus, incidence and prevalence studies allow the identification of the characteristics and susceptibility of individuals in different care settings and different countries.[5-8] Such data enable the identification of risks, construction and implementation of prevention and treatment protocols, and subsidize professional qualification.[10]

OBJECTIVE

- To analyze the clinical profile of patients who have or not pressure ulcers.
- To identify the risk according to the Braden Scale total score.

METHOD

This is a prospective, longitudinal study with a quantitative approach developed in the ICU of a private hospital in Curitiba (PR), Brazil. The study population consisted of patients admitted to the ICU from April 24 to May 24, 2012, making a total of 99 participants, who agreed to compose the sample of this study. The inclusion criteria were: patients hospitalized at the ICU during the period of data collection, patients with or without PU, regardless of the reason for hospitalization.

Data collection was performed through the application of a Data Collection Instrument that included two steps: a) applied at the time of patient hospitalization: sociodemographic data (age, gender, skin color), date and reason for hospitalization, clinical history; B) second evaluation performed daily containing: length of stay and

discharge, incidence of PU (date and location), extrinsic and intrinsic risk factors (Application of the Braden Scale). After the elaboration of the instrument, two collectors were enabled.

The data collected were statistically described and analyzed using the Statistica v.8.0 program to obtain means, medians, minimum values, maximum values and standard deviations (quantitative variables) or by frequencies and percentages (qualitative variables). For the comparison of the groups defined by the occurrence of PU (before hospitalization, inpatient stay, and without UP during hospitalization). The non-parametric Kruskal-Wallis test was used to evaluate the Braden scale. Values of p <0.05 indicated statistical significance. The results were structured in synoptic tables contemplating clinical data (patients) and related to a pressure ulcer.

As recommended in Resolution CNS 466/12, the research project was approved by the Research Ethics Committee of the Health Sciences Sector of the Federal University of Paraná, under the number of protocol 113.078.11.06, in compliance with the norms in force for the accomplishment Research involving human beings.

RESULTS

Participants who did not develop PU during hospitalization (without PU) (n=79), participants who developed PU during hospitalization (n=5) and participants who had PU (n=15). Of the patients already hospitalized with ulcer, 10% (n=10) developed it at home, 4% (n=4) in long-term institutions and 1% (n=1) in other hospitals. Table 1 below describes the sociodemographic and clinical characteristics of the three groups.

Table 1. Sociodemographic and clinical characteristics of patients in Intensive care unit of a private hospital in Paraná. Curitiba (PR), Brazil, 2012.

Variables	*Without PU n e (%)	†PU when hospitalized n e (%)	‡PU before hospitalized n e (%)	General
Age (years old)				
≤ 59	34 (43.0)	3 (60)	2 (13.3)	39 (39.4)
60 – 70	13 (16.5)	0 (0)	1 (6.7)	14 (14.1)
≥ 70	32 (40.5)	2 (40)	12 (80.0)	46 (46.5)
Gender				
Female	46 (58.2)	2 (40)	6 (40.0)	54 (545)
Male	33 (41.7)	3 (60)	9 (60.0)	45 (45.5)
Skin color				
White	58 (73.4)	2 (40)	13 (86.7)	73 (73.7)
Brown	17 (21.5)	1 (20)	2 (13.3)	20 (20.2)
Black	4 (5.1)	2 (40)	0 (0)	6 (6.1)
Time of permanence				
1 day	34 (43.0)	0 (0)	0 (0)	34 (34.3)
2 or 3 days	27 (34.2)	0 (0)	5 (33.3)	32 (32.3)
4 or 5 days	7 (8.9)	0 (0)	5 (33.3)	12 (12.1)
More than 5 days	11 (13.9)	5 (100)	5 (33.3)	21 (21.2)
Evolution				
Discharge	65 (82.3)	2 (40)	13 (86.7)	80 (80.8)
Death	7 (8.9)	0 (0)	1 (6.7)	8 (8.1)
Remaining hospitalized	7 (8.9)	3 (60)	1 (6.7)	11 (11.1)
Reason for hospitalizations§				
Post-operative	23 (29.1)	1 (20)	0 (0)	24 (24.2)
Neurological System	17 (21.5)	3 (60)	3 (20)	23 (23.2)
Respiratory System	14 (17.7)	1 (20)	4 (26.7)	19 (19.2)
Septicemia	3 (3.8)	0 (0)	4 (26.7)	7 (7.1)
Other||	22 (27.8)	0 (0)	4 (26.7)	26 (26.3)
Total	79	5	15	99

* Patients who did not develop pressure ulcers during hospitalization
† Patients who developed pressure ulcer during hospitalization
‡ Patients who had pressure ulcers at admission
§ Sample Stratification
||Urinary system, circulatory, digestive, immune, endocrine, exogenous intoxication.

It should be noted that patients who developed PU during hospitalization stayed for more than five days, with an average of 15.2 days, the median of 12.0 (minimum of 10 and maximum of 29 days), SD=7.85. The mean of the group without ulcer was 3 days (minimum of 1 and maximum of 14 days), and 86.1% (n=68) of the participants remained hospitalized in less than 5 days. Participants who had already admitted with PU remained

on average 4.6 days (minimum of 2 and maximum of 11 days).

In the reasons for hospitalization, in general, there was a predominance of post-operative. Of the patients who did not develop PU, 29.11% (n=23) were post-operative of various surgeries. The diseases of the neurological system occupied the second position, representing 60% (n=3) of the patients who developed pressure ulcers at the hospital. For patients who had already hospitalized with the lesion, 26.7% (n=4) were hospitalized due to complications of the respiratory system and septicemia.

Concerning comorbidities, the most frequent in all three groups were Systemic Arterial Hypertension, with the emphasis of 80% (n=4) of patients who developed PU in the ICU. Diabetes Mellitus was present in 40.0% (n=6) of the patients who hospitalized with PU, according to Table 2 below.

Table 2. Comorbidities of patients admitted to the intensive care unit of a private hospital in Paraná. Curitiba (PR), Brazil, 2012.

Comorbidities*	† Without PU (n=79)		‡ PU when hospitalized (n=5)		§ PU before hospitalized (n=15)		General (n=99)	
	n	%	n	%	n	%	n	%
SAH||	34	43.04	4	80	7	46.67	45	45.45
DM¶	12	15.19	2	40	6	40.00	20	20.20
Stroke**	5	6.33			5	33.33	10	10.10
Cardiopathy	13	16.46	1	20	3	20.00	17	17.17
Degenerative iseases	9	11.39	1	20	4	26.67	14	14.14
Previous surgeries	19	24.05	2	40	4	26.67	25	25.25

*Sectioned Table - Exposed only the most affected comorbidities. Presence of more than one comorbidities per patient.
† Patients who did not develop pressure ulcers during hospitalization
‡ Patients who developed pressure ulcer during hospitalization
§ Patients who presented pressure ulcers at admission
|| Systemic Arterial Hypertension (SAH)
¶ Diabetes Mellitus
** Stroke

Regarding the drugs, the most administered in the 3 groups were non-steroidal anti-inflammatory drugs (NSAIDs), with 80% (n=4) for the group that developed PU at admission. Table 3 below shows the frequencies and percentages of administered drugs.

Table 3. Drugs administered to patients in an intensive care unit of a private hospital in Paraná. Curitiba (PR), Brazil, 2012.

Drugs	* Without PU (n=79)		† PU hospitalized (n=5)		‡ PU before hospitalized (n=15)		General (n=99)	
	n	%	n	%	n	%	n	%
Vasoactive drugs	5	6.33	1	20%	0	6.67	6	6.06
Sedatives	3	3.80	1	20%	1	100	5	5.05
§NSAIDs	73	92.41	4	80%	15	13.33	92	92.93
Corticoids	9	11.39	2	40%	2	26.67	13	13.13
Antibiotic	26	32.91	1	20%	4	6.67	31	31.31

* Patients who did not develop pressure ulcers during hospitalization
† Patients who developed pressure ulcer during hospitalization
‡ Patients who had pressure ulcers at admission
§ Non-steroidal anti-inflammatory drugs

Regarding the score obtained in the Braden scale, patients in the UP group at admission and patients with UP before admission obtained Braden below 12 (high risk) in the first 5 days on average. The group of patients without PU presented with moderate risk Braden on the day of hospitalization and the first day.

Regarding the aspects related to patients with a pressure ulcer, out of the 99 evaluated, five patients who had not had PU had developed a total of seven PU and two patients who had already had PU, developed two new ones, so the incidence was 7.7%. Prevalence was 15.1%.

Thirty pressure ulcers were identified. The total number of lesions in the group that developed PU from hospitalization was seven, corresponding to 1.4 lesions per participant. The total lesions of the group that already admitted with UP were 23, corresponding to 1.5 lesions per participant.

The most affected region was the sacrococcygeal, 22.2% (n=2) of the patients who developed PU in the ICU, followed by the iliac one (22.2%) (n=2). The sacral region was more prevalent with 43.5% (n=10) in the patients who hospitalized with PU, followed by the lower limbs, with 26.1% (n=6). In general, category II was the most found,

followed by category I. The characteristics of pressure ulcer of the two groups are presented in Table 4 below.

Table 4. Distribution of the quantity, anatomical location and category of pressure ulcers developed in patients admitted to the intensive care unit of a private hospital in Paraná. Curitiba (PR), Brazil, 2012.

Local	*PU when hospitalized		†PU before hospitalized		General	
	n e (%)	Category	n e (%)	Category	n e (%)	Category
Neck			2 (8.7%)	1 (n=1); 2 (n=1)	2 (6.7%)	1 (n=1); 2 (n=1)
Sub region	1(11.1%)	2 (n=1)			1 (3.3%)	2 (n=1)
Sacrococcygeal region	2(22.2%)	1 (n=1); 2 (n=1)	10 (43.5%)	1 (n=6); 2 (n=4)	12 (40%)	1 (n=7); 2 (n=5)
Iliac Region	2(22.2%)	1 (n=1); 2 (n=1)	2 (8.7%)	1 (n=1); 4 (n=1)	4 (13.3%)	1 (n=2); 2 (n=1); 4 (n=1)
Lower limbs	1(11.1%)	2 (n=1)	6 (26.1%)	1 (n=2); 2 (n=2); 5 (n=2)	7 (23.3%)	1 (n=2); 2 (n=3); 5 (n=2)
Upper limbs			2 (8.7%)‡	2 (n=2)	2 (6.7%)	2 (n=2)
Genital	1(11.1%)	2 (n=1)	1 (4.3%)‡	2 (n=1)	2 (6.7%)	2 (n=2)
Total	7 (100%)	1 (n=2); 2 (n=5)	23 (100%)	1 (n=10); 2 (n=10); 4 (n=1); 5 (n=2)	30 (100%)	1 (n=12); 2 (n=15); 4 (n=1); 5 (n=2)

* Patients who developed pressure ulcer during hospitalization
† Patients who presented pressure ulcers at admission
‡ Of the patients hospitalized with a pressure ulcer, two developed a new ulcer each.

The most affected region was the sacrococcygeal, 22.2% (n=2) of the patients who developed PU in the ICU, followed by the iliac one (22.2%) (n=2). The sacral region was more prevalent with 43.5% (n=10) in the patients who hospitalized with PU, followed by the lower limbs, with 26.1% (n=6). In general, category II was the most found, followed by category I.

As to the characteristics of the seven patients who developed PU during hospitalization, 57.1% (n=4) admitted for neurological disorders, 14.3% (n=1) due to respiratory, sepsis and post-operative changes, respectively. As to age, 57.1% (n=4) over 70 years old, 71.4% (n=5) males. The minimum residence time was 4 and a maximum of 29 days, according to Table 5 below.

Table 5. Demographic and clinical characteristics of patients who developed pressure ulcer during hospitalization at the intensive care unit of a private hospital in Paraná. Curitiba (PR), Brazil, 2012.

Age (years old)	Gender	*Time (days)	†PU diagnosis	Body Region	Higher Category	§Braden admission	||Braden Not. PU
57	Male	29	12	scrotum	2	12	11
45	Female	12	2	Gluteal	1	8	10
78	Male	11	7	Sacral/thigh	2	13	12
77	Female	14	6	Sacral/gluteal	2	8	8
59	Male	10	7	Gluteal	2	13	15
90¶	Male	11	2	Sacral/Hand	2	9	12
76¶	Male	4	5	Sacral/urinary meatus	2	11	11

* Length of stay in days in the intensive care unit
† Day of hospitalization in which pressure ulcer was diagnosed
‡ Patient pressure ulcer number
§ Braden scale score on the day of hospitalization
|| Braden scale score on the day pressure ulcer was reported
¶ Two patients who have already admitted with pressure ulcer developed a new

Following the description based on Table 5 above, it was identified that these seven patients developed nine pressure ulcers, 57.1% (n=4) had at least two, the sacral region was affected in 44.4% (n=4), followed by gluteal 33.3% (n=3). Category II was identified in 66.7% (n=6) of the cases.

The time interval for PU development after hospitalization was two to five days in 33.3% (n=3) of the cases, from six to ten days in 55.5% (n=5) and after ten days 11.2% (n=1).

According to the Braden scale on hospitalization day, 71.4 (n=5) of the patients were classified as high risk and 28.6% (n=2) with moderate risk. On the day PU was

diagnosed, 87.7% (n=6) of the patients were classified as high risk and 14.3 (n=1) as low risk.

DISCUSSION

In this study, 15.1% (15) patients had a pressure ulcer, and 80% (12) had an age equal or greater than 70 years old. In a general ICU of the University Hospital of São Paulo, 10% (n=34) of 332 patients had PU on admission and 10% of patients admitted with PU,[14] which demonstrates the high rate of patients already hospitalized with Ulcer.

The association of some characteristics of these patients, such as age, diseases inherent in the aging process, chronic diseases such as stroke and systemic arterial hypertension, medications, use of devices and deficits in the application of adequate preventive measures make them more susceptible to PU.[15]

Regarding the length of stay, the group that developed PU remained a longer period of hospitalization with a minimum of ten days, and the group without PU with a time less than 5 days 86.1% (n=68). A study in the ICU of a school hospital in the city of São Paulo found that 38.9% (n=7) were hospitalized for more than 10 days, and those without a 48.3% (n=29) had five days.[4]

A study conducted at a Teresina School Hospital identified a higher occurrence of injuries in patients who remained longer hospitalized but did not show statistical significance.[11] It is noteworthy that in another study in a public hospital in Teresina, the time of onset of PU had 4.2% (n=1) of the participants developed on the second day of hospitalization, 70.83% (n=17) between the third and fourth day, 8.3% (n=2) between the fifth and sixth day and 16.7% (n=4) of time greater than six days.[9]

The ICU is an environment where the patient stays a longer period of hospitalization and can extend from days to months. In this way, the propensity to affect pressure ulcer becomes greater.[4] Another factor to consider is the use of devices that all patients need from the first day of hospitalization, such as electrodes, digital oximeters and some during their stay as probes, masks for artificial ventilation, which increase the risk.[12]

In general, the reasons for hospitalization had a predominance of post-operative. A total of 29.11% (n=23) of patients who did not develop PU were post-operative of various surgeries; there was one case (20%) of PU development. Different from the results of this study, a study of 148 patients submitted to various surgical procedures showed a high incidence of 25% (n=37).[16]

Some factors involved in the surgical process make individuals more likely, such as the length of stay in the same position in the surgical act, besides the more rigid surface, the duration of anesthesia that leads to the patient's inability to change position to relieve pressure.[16,2]

The diseases of the neurological system were the second, with 60% (n=3) of patients who developed pressure ulcer during hospitalization. Divergent from the results of this study, a study in a medium-sized public hospital in João Pessoa, Paraíba, found that 50% (n=4) of the patients had respiratory dysfunction as their hospitalization diagnosis.[10]

For patients who had already admitted with a pressure ulcer, 26.7% (n=4) were from the respiratory system and septicemia, respectively. Respiratory conditions and sepsis cause poor oxygenation and deficits in local and systemic tissue perfusion, which increases tissue ischemia and favors the involvement of this injury.[17]

Regarding comorbidities, there was a predominance of hypertension, especially in the group that developed pressure ulcers in the ICU 80% (n=4). In patients who already had PU, diabetes mellitus was present in 40% (n=6). Arterial hypertension presented as a prevalent comorbidity in the ICU.[9,11]

SAH and DM are chronic diseases that contribute to the elevation of cardiovascular risk, hypertension reduces the resistance of blood vessels to blood flow and vascular tone, with consequent reduction of blood circulation and hinders the oxygenation of tissues. DM causes cell death due to lack of glucose decreases sensitivity favors the formation of UP.[18]

The most commonly used drugs in the three groups were non-steroidal anti-inflammatory drugs (NSAIDs). They cause inhibition of prostaglandins, responsible for increased blood flow and tissue permeability, eventually leading to cardiovascular complications and consequent tissue damage.[17]

Regarding the Braden scale on average, patients in the PU group at admission and patients with PU before admission had a high risk (below 12) in the first 5 days. A study in Turkey identified that in the first 24 hours the criticality and risk of death were significantly ($p < 0.05$) higher for the patients who developed PU (19.9 ± 5.48) compared to those who did not develop (15.1 ± 4.12).[19]

The first week in the Intensive Care Unit is a critical period due to physiological instability, where technologies are used as devices for hemodynamic stability,

mechanical ventilation, catheters, probes, requiring a greater surveillance of risks by the multidisciplinary team, about 50% (n=10) of PUs appear between the first and fifth day.[12,17,19]

The group of patients without PU presented with moderate risk on the day of hospitalization and the first day, from the second day, they were classified as having a high risk. A study that aimed to analyze the risk factors for the development of pressure ulcer in adult patients hospitalized in 22 ICUs from 15 public and private hospitals in Belo Horizonte and Minas Gerais identified that the risk classification changes according to the hospitalization time.[20] It relates the very characteristic of the highly complex patient, who during his/her stay in the ICU may present worsening or improvement of the physiological conditions, and changing the risks.[17]

The incidence was 7.7% (n=7) in a population of 99 patients. The incidence found in the mentioned research was low compared to the others, but they varied according to the population size and time of follow-up, studies with populations of 40 to 78 participants, 22.2% were identified (n=11) at 32.5% (n=13).

In this study, each patient had at least one PU. This data converges with results from other studies.[4,8,21] The sacral region was found as an area of major involvement, and referred to in other studies.[8-10,13,21] As well as category II.[4,8,14]

Regarding the characteristics of only those patients who developed PU in the study period, being the incident cases, the prevalent age was over 70 years old. The elderly population is at greater risk for developing pressure ulcer, studies have identified predominance since the age of 60.[4,8-9]

The male gender was more affected in 57.1% (n=4) of the cases, similar to other studies, but with no statistical significance when it was associated with the appearance of pressure ulcer. There is no consensus in the literature regarding the influence of gender on the genesis of PU; studies show variations in the prevalence of both females and males in different countries, such as Germany, Brazil and China.[7,9,10]

A study to identify risk factors for development of pressure ulcer in patients hospitalized in five adult ICUs hospital in Turkey found that female had lower albumin level than males, making the risk two times higher in female,[19] which demonstrates that the intrinsic factors are eventually related to gender and, consequently, a predictor for PU development.

The hospitalization was due to neurological reasons in 57.1% (n=4) of the cases. Neurological diseases were identified as the most frequent reasons for hospitalization,[9,11] in five Intensive Care Units of one hospital in Turkey, the neurological and cardiovascular systems were identified with 28.0% (n=49) each.[12]

Neurological deficit can affect sensory perception and the ability to feel discomfort and pain, so the patient will not change position when there is pressure in certain regions of the body, the skin becomes moister due to inability to control sphincters, and increased immobility by clinical conditions.[17] Sensory perception, moisture and immobility are risk factors that favor the development and severity of pressure ulcers.[4]

The onset of PU was greater between six and ten days in 55.5% (n=5). Similar to this result, 50% (n=4) also developed between 6 and 10 days.[11] However, the days on which the PU is diagnosed vary in the results of the surveys, between the third and fourth day,[9] between the sixth and tenth day and between the eleventh and fifteenth day.[19]

According to the Braden scale on hospitalization day, 71.4 (n=5) of the patients were classified as high risk and 28.6% (n=2) with moderate risk. Patients admitted to the ICU have predominantly high-risk and moderate scores.[4,11]

On the day PU was diagnosed, 87.7% (n=6) of the patients were classified as high risk and 14.3 (n=1) as low risk. In an ICU in which the studied population was 332, 78.9% (n=262) were at high risk of developing PU.[13] A study in another ICU after the application of Braden showed that 100% of the patients at high risk developed PU, similar to this result. However, of the patients classified as low-risk none developed PU, which diverges from the finding.[9]

The two cases of patients hospitalized with pressure ulcer and developing new ulcers were classified as high risk. Patients classified as having a high risk of developing pressure ulcers according to the Braden scale are 2.5 times more likely to develop new ulcers.[4] Risk assessment is performed even in patients who already have pressure ulcers, as it signals the onset of ulcers in other body regions.[2,20]

CONCLUSION

This study identified the clinical profile, including the pressure ulcer characteristics of

the participants hospitalized in the ICU and identified the Braden scale score.

As for those who developed PU, the population was elderly, and the reasons for hospitalization were neurological, with a longer stay in the ICU, with SAH. At least one lesion was present in each participant, with a predominance of category II, the most affected was the sacral region.

Of the participants who hospitalized with PU, the reasons for hospitalization were the respiratory system, with diabetes mellitus, and two developed new lesions. Both patients who developed pressure ulcers and those hospitalized with injury were at high risk according to the Braden scale.

In this way, this study shows a contribution the knowledge of the epidemiological data of the patients with or without pressure ulcer and allows the formulation of clinical guidelines and public policies to direct the preventive practices and nursing actions in the care management of the care, to reduce this problem.

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