

Prevalence of Pressure Injury of Bedridden Patients, Hospitalized in a Public Hospital

ORIGINAL

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Abstract

Objective: To analyze the prevalence of pressure injury in bedridden patients, hospitalized in a public hospital.

Methods: This is a cross-sectional study conducted in the city of Teresina, state of Piauí. The sample consisted of 27 bedridden patients, with pressure injuries.

Results: The injury prevalence was 31,4%. From the 27 patients studied, 59.3% were elderly, 77.8% were male, 48.1% had circulatory system diseases, 22.2% had respiratory system diseases and 59.3% of the pressure injuries were located in the sacral region.

Conclusion: The prevalence of pressure injury was high among bedridden patients, which shows the need of preventive measures, such as protocol implantation, use of scale of risk assessment, appropriate supporting surface, repositioning in bed, adequacy of dressings and instructions for patient discharge.

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Keywords

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Introduction

Brazil is experiencing a period of demographic and epidemiological transition, as a result of urbanization, industrialization and advances in science and technology. It is possible to link these new characteristics of Brazilian society to lifestyles and high exposure to risk factors

which have, over the years, provided some changes in the morbidity and mortality patterns, such as the high incidence of chronic degenerative diseases and automobile accidents. [1]

As a consequence of these facts, it is common, observing the partial or total loss of physical mobility, the reduction of sensitivity and the occurrence of other injuries such as Pressure Injury (PI), thus constituting the main causes of disabilities, dependence on care, infection, hospitalization and deaths. [2]

The pressure injury (PI), also known as a pressure ulcer, consists of the destruction of the skin layers and/or the underlying tissue and normally develops in areas of bony prominence, as an effect of a prolonged pressure or the combination of the pressure with friction and shear forces; it is classified in four stages, from 1 to 4, according to the depth of the injury and two unclassifiable situations -the deep tissue injury and the necrosis. [3]

Considered as an adverse event to patient safety and a quality indicator of health care, PI represents a severe public health problem, due to its high incidence, prevalence and mortality coefficients, as well as some particularities in treatment, such as the need for surgical interventions, prolonged hospitalization and the high risk of infection. [4]

Studies performed in the United Kingdom and Sweden have shown that the overall PI prevalence in hospitalized patients was approximately 15%. [5,6] In Brazil, this indicator tends to be higher, especially when it involves patients in intensive care, reaching the percentage of 57.9%. [7] In Piauí, the studies found prevalence data of PI with a variance of 13.3% to 40%. [8, 9]

The pressure injuries are considered complex wounds and very difficult to heal, due to the intrinsic and extrinsic factors related to their occurrence. The occurrence of skin injuries, regardless of their etiology, directly influences a person's health-related quality of life (HRQoL), since they can change the daily life activities, causing pain, suffering, fear, dependence, limitations, low self-esteem, anxiety and isolation. [10]

The national literature confirms that the classification of patients at risk, the constant assessment of skin characteristics, the introduction of protocols and educational programs are indispensable in the prevention of PI [11]. Given the seriousness of the PI occurrence, the Ministry of Health implemented the National Policy of Patient Safety in 2013, which has, as one of its goals, the validation of protocols, guides and manuals related to the prevention of pressure injury. [12]

Consequently, primary care and home care reappear in the Brazilian scene as an alternative for prevention, evaluation and treatment of this injury. This practice aims to reduce incidence and mortality indicators and, as a consequence, increase the quality of life, since the presence of injuries enhances the development of temporary and permanent disabilities. [13]

Based on the above considerations, this study aims to analyze the prevalence of pressure injury in bedridden patients, hospitalized in a public hospital in the city of Teresina, state of Piauí, Brazil.

Methods

This is a cross-sectional study conducted in a public hospital in Teresina, state of Piauí. The population consisted of 752 medical records of patients hospitalized in the healthcare and surgical centers, in 2013.

The inclusion criteria were: age of 18 years or more, period of hospital stay of more than 48 hours, prolonged immobility in the bed or chair, and PI report. Those patients, who did not have records with mobility conditions were excluded. After reading all the medical records, 86 records were selected, for they included a history of prolonged immobility throughout the hospitalization period and, from these records, 27 presented PI, thus constituting the non-probabilistic and intentional sampling.

The data collection took place in April and May, 2014, through a semi-structured instrument

consisting of two parts: The first one comprised socio-demographic data, such as age, sex and education. The second one corresponded to the clinical variables, including bedridden time, cause of hospitalization, associated co-morbidities, number of injuries, anatomical location, stage and coverings used for prevention and treatment of the lesions.

The data collected were registered into databases, with double typing in Microsoft Excel spreadsheet, in order to identify and correct possible typing errors. Afterwards, the data were processed by Statistical Package for the Social Sciences (SPSS) software, version 17.0; then, the descriptive statistics were calculated, such as means and standard deviation for quantitative variables, and frequencies for qualitative ones.

In order to calculate the prevalence, the number of bedridden patients who developed pressure lesions was found, and divided by the number of bedridden patients hospitalized in the healthcare and surgical centers, in the year of 2013.

This study met all the requirements of the Resolution 466/12 of the National Health Council, and the favorable opinion to its accomplishment was issued by the Research Ethics Committee of the State University of Piauí, under process nº. 535,179.

Results

From the total number of 752 patients admitted to the healthcare and surgical centers in 2013, 86 patients (11.4%) were bedridden and 27 (3.6%) presented PI. Considering the sample of bedridden patients, the prevalence of pressure injury corresponded to 31.4%, with a predominance of males (77.8%), as well as elderly (81.5%), with a mean age of 68.5 years (SD = 16.6).

The co-morbidities and risk factors identified were: systemic diseases such as diabetes mellitus (63%), arterial hypertension (51.9%), cardiopathies (14.8%), cerebral vascular accident (CVA

(11.1%) and vascular and respiratory diseases (11.1%)

According to **Table 1**, the circulatory diseases (48.1%) represented the main causes of impairment of physical mobility. The predominance of bedtime of up to one month (81.5%), regular feeding conditions (40.7%), urinary incontinence (40.7%) and fecal incontinence (92.6%) were also observed.

Table 1. Clinical characterization of bedridden with PI (n=27). Teresina, Piauí, Brazil, 2014.

Variables	n	%
Reason to stay in bed		
Circulatory system diseases	13	48.1
Nervous system diseases	02	7.4
Respiratory system diseases	06	22.2
External causes of morbidities	05	18.6
Other reasons	01	3.7
Bedtime		
Up to 1 month	22	81.5
2-3 months	03	11.1
4 months or more	02	7.4
Feeding conditions		
Good	08	29.7
Regular	11	40.7
Bad	08	29.6
Urinary elimination		
Continence	07	25.9
Catheter-delay bladder	09	33.4
Incontinence	11	40.7
Fecal elimination		
Incontinence	25	92.6
Colostomy	02	7.4

Source: Service of Medical Records in a public hospital in Teresina, state of Piauí.

In **Table 2**, we can verify that: the duration of the injuries was not recorded in most of the medical records (88.9%), the anatomical location that most affected the patients in the bed was the sacral region (77.8%), a great part of PIs has no stage des-

Table 2. Distribution of pressure injuries, according to time of existence, anatomical location and stage. Teresina, Piauí, Brazil, 2014. (n = 27)

Variables	n	%
Time of existence		
Up to 1 month	01	3.7
2 to 4 months	02	7.4
Not informed	24	88.9
Anatomical location		
Sacral	21	77.8
Ischium	02	7.4
Trochanter	05	18.5
Calcaneus	05	18.5
Other	02	7.4
Stage		
Stage 1	01	3.7
Stage 2	06	22.2
Stage 4	05	18.5
Not informed	23	85.2
Type of covering		
Papain	03	11.1
Collagenase	03	11.1
Essential Fatty Acid	05	18.5
Not informed	16	59.3
Source: Service of Medical Records in a public hospital in Teresina, state of Piauí. #: Sum greater than 100% because a patient may have more than one injury.		

criptions (85.2), nor what covering or product was used for the dressing of the injury (59.3%).

Discussion

According to the sociodemographic characteristics of the studied population, we can verify the predominance of the injuries in males (77.8%), corroborating a study conducted in Piauí that, when analyzing the clinical conditions of bedridden patients under home care, also showed the PI prevalence in males. [13] The prevalence in males is the result of the difficulty of repositioning the patient due to their overweight, as well as an increased exposure to risk

factors and the lower demand for health services. [14]

The highest frequency of pressure injuries was observed in the elderly, with a mean age of 68.5 years (SD = 16.6) and with sequelae of circulatory and neurological diseases. This result is justified by the physical limitations and the greater predisposition to chronic diseases, related to the aging process, which increase the occurrences of some complications such as prolonged immobility and sensitivity loss or decrease. [15]

The chronic situations, when associated with an advanced age, constitute risk factors involved in the pathophysiology of PI, which are increased face to prolonged immobility and hospitalization conditions, which may worsen the health situation and elevate the cost of the treatment.

Additionally, the elderly present an increase in co-morbidities and healing time, reduction in skin elasticity and texture, in the frequency of cell replacement, in mobility, as well as a reduction of lean mass, leading to exposure of bony prominences and favoring the development of PIs. [17]

Regarding the reason for being bedridden, we can verify that the circulatory system diseases were frequent in 48.1% of the patients. This variable includes arterial hypertension, heart attack and heart failure, among others. The chronic non-communicable diseases, when neglected, favor the occurrence of some disabilities that lead to prolonged immobility and consequent risk of PI development, especially if the care with skin and the exposure to moisture is inadequate. Arterial hypertension is a silent disease, even when diagnosed and treated effectively by the Brazilian public service, and one of the difficulties of health teams is adherence to treatment.

With regard to bedtime, 81.5% of the patients were in this condition in up to 30 days. Prolonged immobility is the main risk factor for pressure injury, due to the fact that the patient's stay in the same position for a long period of time can lead to tissue

death and to the occurrence of PI. [4]. The majority of the patients also presented a bedtime of less than one month, but with a high PI indicator, which leads to the conclusion that the preventive measures were not effective.

Concerning to feeding conditions, 40.8% of the patients presented regular condition, followed by 29.6% in bad conditions. The changes in nutritional conditions constitute a risk for the development of PI, due to a reduction of the tissue metabolism. This situation can be frequent in patients hospitalized or with chronic diseases, such as cerebro-vascular accident and spinal cord injury, which impose limitations related to the autonomy in activities of daily life and compromise the functional capacity, such as oral feeding and, in some cases, the need for a gastric or enteral catheter diet, which may lead to a reduction in the patient's body mass index and changes in the skin, mainly in its protein composition, culminating in the occurrence of the PI. [17] It is important to communicate with the multiprofessional team and, in these cases, the nutrition team plays a fundamental role in the prevention of injuries.

The identification of the patient's diagnosis can help the nurse in the assessment of other parameters that may indicate risk for pressure injuries. It is important, when assessing the clinical conditions of patients, to use different sources of information as well as interpret them adequately, in order to develop a care plan based on an interprofessional assistance. [18]

In relation to urinary elimination, 40.7% of the patients were incontinent (using diapers) and 88.9% of them had fecal incontinence. The physiological eliminations may favor the development of injuries such as Incontinence Associated Dermatitis, due to the constant humidity. Dermatitis and PI are very frequent in bedridden and elderly patients, due to risk factors and to the aging physiology that, in association with incontinence, contributes to increase the injury. [4]

Considering the PI development time, we can observe a predominance of the uninformed category, which indicates a failure in the nursing records, in which the nurse is the professional responsible for the history, physical examination and records of nursing care data, in the patient's medical records, from admission to discharge.

The presence of PIs is considered an adverse effect and its prevention is an indicator of quality; however, there are still few clinical studies that report the incidence of pressure ulcers when comparing the magnitude of the problem. Most PIs could be avoided if professionals had more extensive knowledge about the use of risk assessment scales and about the main characteristics of the patients that are susceptible to the development of PI, as well as the use of prevention protocols. [19]

In relation with the anatomical location, the sacral region was the most frequent region (77.8), followed by ischium and trochanters. The data grouping indicated that the lower limbs represent the most affected region, as well as in the research performed in a university hospital in São Paulo. Among the ulcers evaluated, 73.1% of them affected the sacral region, followed by the calcaneal region. These areas are more susceptible to PI development, due to the great pressure made by body weight for a prolonged period. [20]

The most commonly used topical therapy was Essential Fatty Acid (EFA), used in gauze in the various stages of the wound, followed by collagenase, which is used as a product to promote enzymatic debridement of slough and necrosis. The use of EFA was found in a study carried out in Campo Grande, which assessed the therapeutic methods adopted in the treatment of pressure injuries and pointed out the predominance of EFA in the treatment of pressure injury. The choice of EFA for the treatment of wounds can be justified by the lack of professional knowledge of the diversity of coverings, their purposes and indications, by the lack of institutional protocols and the scarcity of investments and finan-

cial resources in new technologies for the treatment of wounds. [21]

When assessing the injury stage, we can verify that most PI had no records of depth (85.2%), followed by stage 2 (22.2%) and stage 4 (18.55). This result may be related to factors such as failures in communication, nursing records, monitoring and supervision of the patients. [22]

There were no conditions for defining the type of affected tissue, as in situations of necrosis, slough and deep tissue injury, which makes it difficult to choose a specific treatment for each type of injury. The predominance of pressure injury in category I, followed by category II was recognized in the study. [20]

It is important to observe that, among the prevention measures of PIs – besides the coverings and the procedures of dressing changes there is a recommendation for repositioning the patient in the bed, present in most of the PI prevention protocols, occurring in every two hours, and the orientation about a common support surface and mattresses with densities lower than D33. The purpose of this procedure is to reduce or eliminate surface pressure and maintain microcirculation. The preventive measures should be established by all team that monitors and assists the patient, associated with conditioning factors such as oxygenation, feeding, motor physical therapy and systematic assessment of the skin. When occurring PI, it is important to assess its depth, type of tissue and choice of covering, according to the characteristics of the wound and with proper and regular changing of the dressing. [13]

It is important that health professionals be more attentive to patients with clinical conditions, very advanced age or prolonged immobility, because this study shows that this population develops PI more easily, which may be the triggering factor for early mortality.

Conclusion

We can conclude that the prevalence of PI was high, developed in a short period of time, in the group of elderly, hypertensive, diabetic men and with circulatory system diseases. The prevalence was the development of multiple PIs, located in the sacral region with scarce records regarding the stage and treatment of PI.

Due to this fact, it is necessary to implement protocols with the use of risk assessment scales and measures for prevention and treatment of PIs, in order to reduce the prevalence of this injury and the consequent additional costs, as well as the physical and mental suffering that it causes to the patient and relatives.

Furthermore, we can observe the need to improve some fundamental notes and data records, in order to enable the clinical evaluation of the patients and the implementation of prevention measures and appropriate treatment. It is necessary to deepen the studies on PIs and the prospective researches to evaluate its incidence and prevalence.

It is expected that this research can contribute to the improvement of the performance and a greater reflection of both the health professionals especially the nurse, who deals directly with the care and has the responsibility to update and apply preventive measures, thus reducing the PI occurrences -, and managers, in order to develop public policies on the quality of the clientele's treatment, offering better conditions of structure and work to the multiprofessional team.

Limitations

The limitations of this study were related to the scarcity of information, regarding the stage of the injury and the topical therapy used in the treatment, due to the failures in the nursing records.

References

1. Campolina AG, Adami F, Santos JLF, Lebrão ML. The health transition and changes in healthy life expectancy in the elderly population: possible impacts of chronic disease prevention. *Cad.SaúdePública*, 2013; 29(6):1217-1229.
2. Diniz EM, Morita ABPS, Paula MAB. Risk situation for pressure ulcer in home care unit. *Rev. Estima*, 2016; 14(2):53-60.
3. NPUAP. National Pressure Ulcer Advisory Panel. The National Pressure Ulcer Advisory Panel redefined the definition of a pressure injuries during the NPUAP 2016. Staging Consensus Conference that was held April 8-9, 2016.
4. Bezerra SMG, Barros KM, Brito JA, Santana WS, Moura ECC, Luz MHBA. Characterization of sores in bedridden patients assisted by the Family Health Strategy. *Rev. Interd*, 2013; 6(1):105-114.
5. Briggs M, Collinson M, Wilson L, Rivers C, Mcginnis E, Dealey C, Brown J, Coleman S, Stubbs N, Stevenson R. The prevalence of pain at pressure areas and pressure ulcers in hospitalised patients. *BMC Nurs.*, 2013; 12(1):14-19.
6. Gunningberg L, Hommel A, Bååth C, Idvall E. The first national pressure ulcer prevalence survey in county council and municipality settings in Sweden. *J. Eval. Clin. Pract.*, 2013; 19(5):862-867.
7. Matos LS, Duarte NLV, Minetto RC. Incidência e prevalência de úlcera por pressão no CTI de um Hospital Público do DF. *Rev. Eletr. Enf.*, 2010; 12(4):719-26.
8. Pessoa EFR, Rocha JGSC, Bezerra SMG. Prevalence of pressure ulcers in bedridden registered at the Family Health Strategy: a nursing study. *R. Interd.*, 2011; 4(1):14-18.
9. Bezerra, SMG, Barros KM, Brito JA, Santana WS, Moura ECC, Luz, MHBA. Characterization of sores in bedridden patients assisted by the Family Health Strategy. *Rev. Interd.*, 2013; 6(3):105-114.
10. Souza DMST, Borges FR, Juliano Y, Veiga DF, Ferreira LM. Qualidade de vida e autoestima de pacientes com úlcera crônica. *Acta Paul Enferm.* 2013; 26(3):283-8.
11. Silva EWNL, Araújo RA, Oliveira EC, Falcão VTFL. Applicability of the prevention protocol of pressure ulcers in intensive care unit. *Rev Bras Ter Intensiva.* 2010; 22(2):175-185.
12. Brasil. Ministério da Saúde. Programa de Segurança do Paciente. Portaria GM/MS 529/2013. Available in: <http://www.saude.mt.gov.br/upload/controle-infeccoes/pasta2/portaria-msgm-n-529-de-01-04-2013.pdf>. Access in October 2016.
13. Bezerra, SMG et. al. Prevalência, Fatores Associados e Classificação de Úlcera por Pressão em Pacientes com Imobilidade Prolongada Assistidos na Estratégia Saúde da Família, *Rev Estima.* 2014; 12(3):41- 49.
14. Queiroz ACCM, Mota DDCF, Bachion MM, Ferreira ACM. Pressure ulcers in palliative home care patients: prevalence and characteristics. *Rev. Esc. Enferm USP*, 2014; 48(2):264-71.
15. Chaiamyti EMPC, Caliri MHL. Pressure ulcer in patients under home care. *Acta Paul Enferm.*, 2010; 23(1):29-34.
16. Lucena AF, Pereira AGS, Almeida MA, Dias VLM, Friedrich MA. Clinical Profile and Nursing Diagnosis of Patients at Risk of Pressure Ulcers. *Rev. Latino-Am. Enfermagem.* 2011; 19(3):1-8.
17. Campos SF, Chagas ACP, Costa ABP, França REM, Jansen AK. Factors associated with the development of pressure ulcers: the impact of nutrition. *Rev. Nutr.* 2010; 23(5):703-714.
18. Moro JM, Caliri MHL. Pressure ulcer after hospital discharge and home care. *Rev. Esc. Anna Nery*, 2016; 20(3):1-6.
19. Gomes FSL, Bastos MAR, Matozinhos FP, Temponi HR, Meléndez GV. Risk assessment for pressure ulcer in critical patients. *Rev. Esc. Enferm. USP.* 2011; 45(2):313-18.
20. Rogenski NMB, Kurcgant P. The incidence of pressure ulcers after the implementation of a prevention protocol. *Rev. Latino-Am. Enfermagem.* 2012; 20(2):1-7.
21. Sant'ana SMSC, et al. Venous ulcers: clinical characterization and treatment in users treated in outpatient facilities. *Rev Bras Enferm.*, 2012, 65(4):637-44.
22. Borsato FB, Rossaneis MA; Haddad MCLF, Vannuchi MTO, Vituri DW. Assessment of quality of nursing documentation in a University Hospital. *Acta paul. enferm.*, 2011; 24 (4):527-33.

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