

Federal University of Rio de Janeiro State



Journal of Research Fundamental Care Online

ISSN 2175-5361
DOI: 10.9789/2175-5361

RESEARCH

Análise da prevalência de desbridamento cirúrgico de úlcera por pressão em um hospital municipal

Analysis of the prevalence of surgical debridement of pressure ulcers in a municipal hospital

Análisis de la prevalencia del desbridamiento quirúrgico de las úlceras por presión en un hospital municipal

Laelson Rochelle Milanês Sousa ¹, Sandra Marina Gonçalves Bezerra ², Rafael Fernandes de Mesquita ³, Maria Helena Barros Araújo Luz ⁴, Maria Eliete Batista Moura ⁵

ABSTRACT

Objective: This study aimed to assessing the prevalence of surgical debridement of Pressure Ulcer (PU), describe the socio-demographic, clinical profile and anatomical location of the PU. **Method:** This was a retrospective study with a quantitative analysis of the data obtained in the period from August 2011 to June 2013 made with 416 records of surgical clinic of a general hospital, where 47 patients underwent surgical debridement. **Results:** The prevalence of 11,29 % of surgical debridement related to UPP, of these, 59,57% male, comorbidities 38,02%, Hypertension 26,76% Diabetes Mellitus. The anatomical locations of the UPP were 40,74% sacrococcygeal, 24,69% calcaneus and 19,75% trochanter. **Conclusion:** The prevalence of debridement of PU was high in the elderly, from the home, with comorbidities, which corroborated the need to implement prevention PU program integrated continuum of care for these patients and reference strengthen home care protocols for reducing these injuries. **Descriptors:** Debridement, Pressure ulcer, Nursing.

RESUMO

Objetivo: Avaliar a prevalência de desbridamentos cirúrgicos de Úlcera por Pressão (UPP), descrever o perfil sociodemográfico, clínico e localização anatômica das UPP. **Método:** Estudo retrospectivo, com análise quantitativa dos dados obtidos no período de agosto de 2011 a junho de 2013, realizado com 416 prontuários da clínica cirúrgica de um hospital geral, onde 47 pacientes foram submetidos ao desbridamento cirúrgico. **Resultados:** Encontrou-se prevalência de 11,29% de desbridamento cirúrgico relacionado à UPP, destes, 59,57% eram do sexo masculino, comorbidades 38,02%, Hipertensão Arterial Sistêmica 26,76% Diabetes Mellitus. As localizações anatômicas das UPP foram 40,74%, sacrococcígea, 24,69% calcâneo e 19,75% trocateres. **Conclusão:** A prevalência de desbridamento de UPP foi elevada em idosos provenientes do domicílio, com comorbidades associadas, o que corroborou a necessidade de implementação de protocolos de prevenção de UPP, programa de cuidados continuados integrados para referência desses pacientes e fortalecimento da assistência domiciliar para redução desses agravos. **Descritores:** Desbridamento, Úlcera por pressão, Enfermagem.

RESUMEN

Objetivo: Estudio retrospectivo, exploratorio que tuvo como objetivo evaluar la prevalencia de desbridamiento quirúrgico relacionado con úlcera por presión (UPP) en un Hospital General, describiendo el perfil socio-demográfico y clínico de la localización anatómica de las úlceras por presión. **Método:** Se llevó a cabo con 416 registros clínicos del centro quirúrgico, los datos obtenidos mediante el análisis de los registros fueron procesados utilizando el software de Microsoft Office Excel 2007. **Resultados:** Los resultados mostraron prevalencia de 11,29% en el desbridamiento quirúrgico relacionado con UPP, de estos, 59,57% sexo masculino, 53,19 % tienen entre 60 a 79 años, el 19,14 % de 80 años y más. Las comorbidades más prevalentes fueron la hipertensión arterial y la diabetes mellitus 38,02% y 26,76 %. Como las ubicaciones de la UPP fueron sacrococcígea 40,74 %, 24,69% calcáneo, trocánter 19,75%. **Conclusión:** Se sugieren nuevos estudios que involucren el tema y hay una necesidad de implementar el programa de prevención de UPP continuo integrado de atención para estos pacientes y referencia fortalecer los protocolos de atención a domicilio para reducir estas lesiones. **Descritores:** Desbridamiento, Úlcera por Presión, Enfermería.

¹ Master's Student of the Nursing Postgraduate Program of UFPI, Specialist in Family Health at UNINOVAFAPI University Center, holds a Degree in Nursing - UESPI, E-mail: laelson_@hotmail.com ² Master of Nursing (UFPI), Doctoral Student of Nursing (UFPI). ³ Doctoral Student and Master in Business Administration (Unifor), Professor of the Federal Institute of Piauí. ⁴ Doctorate in Nursing (UFRJ), Professor of the Postgraduate Program (Master's and Doctorate) of UFPI. ⁵ Post-Doctorate by the Open University of Lisbon, Portugal, Doctorate in Nursing from UERJ, Professor of the Nursing Graduate and Post-Graduate Program of UFPI.

INTRODUCTION

In the last five decades the Brazilian population has undergone changes in the age structure in their aging process that develops quickly, and the number of children per couple decreased significantly. Thus, the health care of the elderly becomes relevant throughout the country, especially its highest percentage of participation. However, the attention given remains incipient in a country with very different realities in its regions, to the time when the chronic diseases that affect the elderly tend to limit their quality of life.¹

Public health services do not meet the demand of the population, especially the elderly, who need more care and therefore the complications tend to progress numerically. It is noteworthy in this context, pressure ulcer to (PU) is defined as a lesion on the skin that can radiate into tissues or underlying structures, often developing over a bony prominence, resulting in isolation pressure, may be associated friction and/or shear.²

Thus, the prevalence and incidence of PU have increased in several spaces that provide health care, whether in nursing homes, hospitals, intensive care units and households, the disease affects patients who are in a state of risk, among which include old age with them. The impairment of general medical condition predisposes the appearance of skin complications. Another fact is that staying in bed for prolonged periods, the inability or difficulty moving contributes to the emergence of PU.³

The resulting complications of the PU are mainly observed in its most advanced categories when accumulate large amount of necrotic tissue. The presence of necrotic tissue has specific conditions for bacterial growth. Devitalized spaces in the wound facilitate the development of anaerobic bacteria, increasing the risk of infection. In such cases, patients are at risk of developing sepsis when affected the mortality rate can reach values which reach 68%.⁴⁻⁵

Additionally, such microorganisms may impede the granulation tissue formation and to facilitate healing, it is recommended to use the surgical debridement, consisting procedure that removes necrotic parts of the wound bed to expose healthy tissue and thus stimulate healing.⁶ ulcers in initial categories may be debrided at the bedside, using simpler techniques such as the application of coatings that will promote autolytic debridement. Already in advanced PU, it is necessary surgical debridement technique which requires spinal anesthesia and in some cases, general anesthesia.⁵

Thus, the surgical debridement is emerging as a tool which assists in the treatment of advanced ulcers, to expose the healthy tissue that can regenerate more easily. When assistance is provided effectively and individually, the deleterious effects can be minimized

and the hasty recovery, contributing to the well-being of patients.⁷ According to the above, the aim in this study was to evaluate the prevalence of surgical debridement of pressure ulcers, characterize the profile sociodemographic, clinical and describe the anatomical location of the PU.

METHOD

The study was conducted in the operating room of a municipal hospital in the city of Teresina-PI. It is a documentary research, retrospective, with a quantitative approach, using methods of descriptive statistics. There was a survey of surgeries performed from the book of surgical and subsequent search center records on file for selection and analysis of the records. Between August 2011 and June 2013 were performed 416 surgical procedures and selection criteria for inclusion of the records was the description of surgical debridement of pressure ulcers, therefore, the sample consisted of 47 records.

To collect data, we used an adapted tool⁽⁸⁾ structured in four parts. The study was initiated by a pre-test that analyzed medical records of patients who underwent surgical debridement of PU to adapt the items of data collection form, the following aspects were considered: identification and history of the patient; clinical condition; evaluation of records on quantity and anatomical location of the PU.

Data collection was conducted between August and November 2013 through exploratory research with reading the medical records of patients who underwent the surgical procedure. Then data were extracted every month from the information found in the archive. The research was formal and systematic, seeking to avoid methodological obstacles.⁹ Initially it was identified the type of surgery performed, and if there was occurrence of debridement of PU, went to the registration in specific instrument collection, aimed at filling information on the characterization of the hospital clientele: age, sex, marital status, national origin, education, profession, family income, the reason for admission, personal and family history, and debridement of data.

Information was processed electronically, with the support of electronic software Statistical Package for Social Sciences (SPSS) version 20.0 *for Windows*[®], applying the formulas for the calculation of simple descriptive statistics and percentages. After this initial analysis, we conducted the chi-square test (X^2), with 5% significance level for all cases. The information obtained by processing the data was organized in graphs and tables. To calculate the prevalence of surgical debridement related to PU was considered the total number of records found in the sample period ($n = 416$) and the number of records specifically related to surgical debridement of PU ($n = 47$).

The project was approved by the Hospital of Teresina authorized by the Research Ethics Committee Foundation (CEP) of the University of Taubate (UNITAU) under number

16130313.0.0000.5501. Patients were ensuring confidentiality, privacy, image protection, non-stigmatization and non-use of information that might give them losses, as explained by the Resolution 466/2012 provisions of the National Health Council.¹⁰

RESULTS AND DISCUSSION

In the period from August to October 2013 were investigated 416 reports of patients who have undergone surgical procedures. Of these, they identified 47 patients who underwent surgical procedure related to PU, with overall prevalence of 11,29% of surgical debridement of PU.

The sociodemographic profile of the patients who underwent surgical debridement of PU, which involves the variables sex; age; naturalness and origin are described as shown in Table 01.

Table-01 - Socio-demographic profile of patients who underwent surgical debridement for Pressure Ulcer related (PU). Teresina, PI, 2013.

Variables	N	%	P
Gender			0, 189
Male	28	59,57	
Female	19	40,43	
Age			<0, 001
20 40	05	10,60	
40 60	05	10,60	
60 80	28	59,61	
80 and over	09	19,10	
Origin			<0, 001
Teresina	35	74,46	
Countryside	11	23,42	
Other States	01	02,12	
Precedence			0, 455
Domicile	19	40,40	
Non registered	16	34,00	
Other hospitals	12	25,51	

Source: Research data (2013).

It became evident as the socio-demographic profile of the 47 patients, 28 (59,57%) were male ($p = 0,189$), with no significant statistical differences between the sexes.²⁸ (59,57%) were aged between 60 and 80, even with regard to age, it was observed that 09 (19,14%) were aged 80 or older ($p < 0,001$). The lower age limit was 26 and the upper limit was 94 years old.

Regarding the naturalness, the survey showed that 35 (74,46%) were domiciled in Teresina, followed by people living in cities in the countryside 11 (23,40%) and in cities in other states 01 (02,12%) ($p < 0,001$). In addressing the merits, it is evident that 19 (40,40%) were from the home, 16 (34,00%) did not have provenance record and 12 (25,50%) from other hospitals for surgical debridement ($p = 0,455$).

Below is a table 02 with data that define the clinical profile of patients through its associated medical conditions and risk factors.

Table-02 - Distribution of patients who have undergone surgical debridement related to Pressure Ulcer (PU) according to the Clinical Profile. Teresina, 2013.

Variable	Category	N	%
Clinical conditions and risk factors ¹	Hypertension	27	38,02
	Diabetes Mellitus	19	26,76
	Does not apply	12	16,90
	Vascular Disease	05	07,04
	Other	05	07,04

¹ Sum more than 100%, because a patient may present more than one risk factor.

Notes: $X^2 = 28,255$; $p < 0,001$

Source: Research data (2013).

It is observed that 27 (38,02%) of patients have Systemic Hypertension and 19 (26,76%) Diabetes Mellitus. Please note that 12 (16,90%) patients showed no clinical conditions or risk factors discussed in the table above.

The PU presented in various anatomical regions, and the frequency of appearance showed that some patients who have undergone surgical debridement PU had more than one lesion. Next, in Table 03, they are characterized as the number and location.

Table-03 - Characterization of quantity and anatomical location of Pressure Ulcers in patients who have undergone surgical debridement related to Pressure Ulcer (PU) in a county hospital. Teresina, 2013.

Variable	Category	N	%
Number of PU per patient	1 PU	24	51,06
	2 PU	09	19,14
	3 PU	08	17,02
	More than 3 PU	06	12,76
Anatomical Location ¹	Sacroccocygeal	33	40,74
	Calcaneus	20	24,69
	Trochanters	16	19,75
	Other regions	12	14,81

¹ Sum more than 100%, because a patient may present more than one anatomical location.

Notes: $X^2 = 20,319$ e $56,191$, respectively; and $p < 0,001$ (in both cases).

Source: Research data (2013).

How to show the data in Table 03, which features the PU as the appearance by patients and their anatomical locations, it became clear that 06 (12,76%) had more than three PU and 08 (17,02%) had 03 PU. As for the distribution by anatomical regions, the main results show 33 (40,74%) of the PU were located in the region Sacroccocygeal and 20 (24,69%) in heels, 16 (19,75%) and trochanter in 12 (14,81%) in locations such as elbows, ears, thigh, occipital region.

The problems involving the treatment of advanced ulcers states on the need to use surgical technique and other specific care during the postoperative period. During the literature review for this work it was observed in the databases investigated the lack of Brazilian publications related to the specific topic of surgical debridement of pressure ulcers. From the search for international productions was identified that the production concerning the subject is very low, there is the need for dissemination of knowledge in the scientific community.

In the present study, a high prevalence of surgical debridement of pressure ulcers, setting up problem because they are only surgically debrided ulcers that are in advanced

categories with large amount of necrotic tissue where the risk of sepsis increases. Studies show that patients with PU developing sepsis at high risk mortality, reaching up to 68%.⁵

It can be said that surgical debridement contributes to the restoration of bacterial balance. There is a lack of controlled studies those definitely make clear the benefits brought by this procedure to help the healing process, but it is known that the risk of infection is reduced by bringing them about.¹¹

Regarding the socio-demographic profile, most survey participants were male, unlike most developed researches on PU, but this study did not assess all cases of developing PU, only those who underwent surgery. In a study developed in the United States, where surgical records concerning pressure ulcer debridement were analyzed, researchers found that 55% of respondents were female.⁵

National studies that address the prevalence of PU also point to higher presence of cases of female patients. In research conducted at a university hospital, which aimed to characterize the socio-demographic profile of patients with PU, the findings showed the prevalence of females (71%) among patients who developed PU.¹²

These studies present results indicating that the female constantly shows with greater presence to the male in most polls, justified these results because, in Brazil, the female portion of the population have better survival than male.¹³

However, one can observe some investigations whose results indicate prevalence of males. In prevalence study conducted in inpatient units for adults at University Hospital, was identified slight predominance of males (58,80%) among patients with PU.¹⁴ In a study developed with records of institutionalized elderly, the results indicate rapid difference between the sexes, with the male who has attained the highest percentage (53%).⁷

In research carried out in Piauí, in which it aimed to analyze the risk factors for developing pressure ulcers in ICU patients, the researchers found that the presence of men was higher than women, so in this study we note the more prevalent among males.¹⁵

Regarding the age group, it was found that the majority was over the age of 60. In the US study investigating the cases of surgical debridement of pressure ulcers based on electronic files, the researchers found that the average age was 73,1 years old.⁵

In another study the mean age of patients with PU was similar, 67, with a predominance of the age group over 61 (70,60%) of patients with PU.¹⁴ In patients who underwent elective surgery for the group that developed PU, it can be seen that the higher percentage (21,7%) patients were aged between 48 and 58 years old.¹⁶

Data from this study are related to those described in the literature, indicating the relationship between age and development PU is quite close. The advanced age is closely related to patients who have undergone surgical procedure related to debridement of PU. Thus it appeared that older age is not related only as a risk factor for developing PU, but also with worsening ulcers.

The elderly are more likely to develop PU because the skin, with age, gradually loses its elasticity. The natural aging process entails great physiological changes and obvious anatomical changes, among these is the fact that the skin becomes brittle and loses its integrity easier than in young subjects. These changes imply greater susceptibility to pressure forces, friction and shear.¹⁴ It highlights the need for policies aimed at the prevention of PU

in the elderly, since they show vulnerable to diseases, chronic diseases and thus become more developing the exposed PU.

With regard to nationality, there was predominance of patients from the capital Teresina especially residents in surrounding neighborhoods, identified themselves still state of the inside of patients with significant percentage and fairly small percentage of natural patients from other states. In a survey conducted in the ICU of a general hospital in Teresina results showed high percentage of natural patient cities in the state.¹⁵

Because of the peripheral geographical location of the Hospital, it is expected to be its largest audience of the region, because it is socially disadvantaged population. Teresina is a reference in health care for the entire state of Piauí and neighboring states, as well, it is often the presence of patients from other municipalities in Piauí.

The low number of patients from other States can be explained by change of address. When patients from other states seek health care in Piauí, especially in Teresina, usually omit his real address and indicate where they are staying in pensions, and thus are recorded as being the capital Teresina.

There were a high percentage of patients coming from the home to perform debridement of PU. In a study conducted in the capital Teresina, the researcher describes it at home in bedridden patients the prevalence of PU between subjects is 23,52%.⁸ These data imply that some of these homes in developed ulcers progress to more advanced classes and access levels necrosis requiring surgical intervention. Severe ulcers do not evolve in the studied hospital, but, in their own homes.

The high age presented in this study may also be related to the number of patients coming from the home, since they are more prone to developing PU elderly with compromised health status and remain long periods in the same position, in this case, bedridden in their own homes.

It showed that even patients came from other hospitals, such as district hospitals and Emergency Hospital. The hospital researched is considered as reference for carrying out surgical debridement related PU by having professional medical experts in the field, because this profile is elevated number of these procedures, since patients are already admitted PU for the debridement.

Regarding the clinical conditions and associated factors, it was observed that chronic non-communicable diseases were relevant percentage between the subjects, especially hypertension and diabetes mellitus, alone, associated with each other or with other comorbidities. In a study of prevalence of PU in the elderly, 74,3% of patients were affected by hypertension.⁷

In other studies, hypertension was the most prevalent, in isolation or associated with other diseases, with 71,8%.¹⁷ Research that aimed to evaluate the incidence of PU in the Intensive Care Unit (ICU), for the present disorders in patients admitted to high blood pressure was also higher.¹⁸ The chronic diseases shown to be common among subjects studied, there are multiple factors that lead to the emergence of PU, studies show that these diseases represent moderate risk for developing PU.¹⁹

The presence of smokers and drinkers, fewer identified themselves. Nicotine causes vasoconstriction, interfering with the normal flow of blood vessels, interfering negatively in

nutrition and oxygenation of tissues. Smoking patients are classified as at risk of developing PU.¹⁴

The number and distribution of the PU, the results show that patients suffering from ulcers are more vulnerable to the development of new lesions, as in this large study of the patients had more than one PU, distributed by various anatomical regions. Study debriding PU showed that the number of ulcers was greater than the number of patients with the majority of patients had more than one PU.⁵

Regarding the anatomical location of the PU, the results show diversity in the appearance of the lesions, these being distributed in various areas of the body. The Sacrococcygeal region was the most prevalent, with high percentage in cases of numbers. The heels have relevant numbers for this research because it is the second most affected region, followed by trochanters.

It was possible to identify the occurrence of PU in other regions, such as ear, elbows, malleolus, and ischial tuberosity and even identified the occurrence of PU in thighs and knees. These locations, which are widely described in the literature, may indicate inadequate reflection of care patients that are already affected by PU.

USA research found that most of the PU (53%) were located in the hip (ischial and trochanteric), others were in the sacrum (32%) and heels (14%).⁵ In one British case study the patient focus study had pressure ulcers in sacral region and heels.¹¹ In Local Search powered by bedridden patients under home care, the results showed that the anatomical region most affected was the sacrococcygeal ulcers (79,17%), followed by ischial tuberosity and trochanter.⁸

In descriptive quantitative survey of surgical patients, the results showed that the part of the body most affected by the injuries were the gluteal sacrum with (68,20%) and heels (18,20%) The survey also identified the ear (04,6%).¹⁶ descriptive exploratory study conducted at University Hospital, the results showed that the regions most affected by ulcers were religious (50%), Achilles (20%), malleolus, knee and buttock a lesser percentage.¹²

In research that aimed to determine the prevalence of UPP in inpatient units for adults at University Hospital, the results showed that of the 33 ulcers observed (39,30%) were located on the heels (27,3%) in the sacral region (9,1%) in the gluteal region (9,1%) malleolus and other locations as elbow and arm.¹⁴

In another investigation, the main areas of focus of PU were sacral (63,4%) and heels (29,3%).²⁰ Most studies point to the sacral region as the most affected in the involvement of PU, in a prospective cohort study conducted in neurosurgery unit, the most affected anatomical areas were the malleolus and calcaneal.²¹

The occurrence of PU in calcaneus was well reported in most studies, simple measures can be used to prevent PU in this location. Suspend the pressure exerted on the heels positioning cushions under the legs or even folded sheets comprise framework of measures that do not generate large expenses and relieving, effectively, excessive pressure on heels.

It is understood that the heels should be kept out of contact with the bed, high pressure free, and materials used for pressure relief must be positioned so as to be distributed on the leg extension, to not generate a new point of pressure.

CONCLUSION

The prevalence of debridement related to PU was high and the data highlight the problems related to the care provided to patients in prolonged immobility situations, the need to implement PU prevention protocols, integrated continuous care program and home care to reduce this hazard.

Due to the national and international dearth of research on the subject investigated, it is emphasized that this study reaffirms the importance of conducting further research involving pressure ulcer debridement, increasing research on the topic and thus contributing to the construction of knowledge based on evidence. It can be played as it has well-established methodological way, the institution where the research took place can replicate it and get new data and thus compare the results.

Thus, future research is needed to better shut up the origin of the patients and the main factors that led to the worsening of PU as to require surgical debridement, and investigate the degree of recurrence of these procedures, and point out ways to reduce of this disease and methods of prevention.

REFERENCES

1. Chacon JMF, Blanes L, Hochman B, Ferreira LM. Prevalence of pressure ulcers among the elderly living in long-stay institutions in São Paulo. *Sao Paulo Med. J.* 2009;127(4):211-5.
2. European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. Prevention and treatment of pressure ulcers: quick reference guide. Washington (DC): National Pressure Ulcer Advisory Panel; 2009.
3. Araújo TM; Araújo MFM; Caetano JA; Galvão MTG; Damasceno MMC. Diagnósticos de enfermagem para pacientes em risco de desenvolver úlcera por pressão. *Rev Bras Enferm.* 2011;64(4): 671-6.
4. Cardinal M, Eisenbud DE, Armstrong, DG, Zelen C, Driver V, Attinger C, Phillips T. Serial surgical debridement: A retrospective study on clinical outcomes in chronic lower extremity wounds. *Wound Repair and Regeneration.* 2009;17: 306-11.
5. Schiffan J, Golinko MS, Yan A, Flatua A, Canic MT, Bren, H. Operative Debridement of Pressure Ulcers. *World Journal of Surgery.* 2009; 33:1396-402.
6. Haycocks S, Chadwick P. Debridement of diabetic foot wounds. *Nursing Standard.* 2012;26:51-8.
7. Freitas MC, Medeiros ABF, Guedes MVC, Almeida PC, Galiza FT, Nogueira JM. Úlcera por pressão em idosos institucionalizados: análise da prevalência e fatores de risco. *Rev. Gaúcha Enferm.* 2011;32(1):143-50.
8. Bezerra SMG. Prevalência de úlceras por pressão em pacientes acamados e cuidados dispensados no domicílio. 2010. Dissertação (Mestrado). Programa de Pós-Graduação em Enfermagem, Universidade Federal do Piauí, 2010.
9. Mesquita RFD, Sousa MBD, Martins TB, Matos FRN. Óbices metodológicos da prática de pesquisa nas ciências administrativas. *Revista Pensamento Contemporâneo em Administração;* 8(1), 50-65, 2014.
10. Brasil. Ministério da Saúde. Resolução Conselho Nacional de Saúde Regulamenta diretrizes e normas regulamentadoras de pesquisa envolvendo seres humanos. Resolução RCN n. 466, 14 jun. 2013. Brasília. 2013.
12. Araújo CRD, Lucena STM, Santos IBC, Soares MJGO. A enfermagem e a utilização da escala de Braden em úlcera por pressão. *Rev. Enferm. UERJ.* 2010;18(3):359-64.
11. Kelly, J. Methods of wound debridement: a case study. *Nursing Standard.* 2010;25(25):51-9.
13. Chayamiti EMPC, Caliri MHL. Úlcera por pressão em pacientes sob assistência domiciliar. *Acta paul enferm.* 2010;23(1): 29-34.
14. Rogenski NMB, Kurcgant P. Avaliação da concordância na aplicação da Escala de Braden interobservadores. *Acta paul. enferm.* 2012;25(1):24-8.
15. Sousa PRA, Sousa MFS, Barros IC, Bezerra SMG, Sousa JRB, Luz MHBA. Avaliação de risco para desenvolvimento de Úlceras por Pressão em pacientes críticos. *Rev Enferm UFPI* 2013; 2(1):9-15.
16. Ursi ES, Galvão CM. Ocorrência de úlcera por pressão em pacientes submetidos a cirurgias eletivas. *Acta Paul Enferm.* 2012;25(5): 653-9.

17. Scarlatti KC, Michel JLM, Gamba MA, Gutiérrez MGR. Úlcera por pressão em pacientes submetidos à cirurgia: incidência e fatores associados. *Rev. Esc. Enf. USP.* 2011; 45(6):1372-79.
18. Pereira LC, Luz MHBA, Santana WS, Bezerra SMG, Figueiredo MLF. Incidência de úlceras por pressão em uma unidade de terapia intensiva de um hospital público. *Rev Enferm UFPI* 2013; 2(4):21-7.
19. Menegon DB, Berenice RR, Santos CT, Lucena AF, Pereira GS, Scain SF. Análise das subescalas de Braden como indicativos de risco para úlcera por pressão. *Texto contexto - enferm.* 2012;21(4): 854-61.
20. Studart RMB, Melo EM, Lopes MVO, Barbosa IV, Carvalho ZMF. Tecnologia de enfermagem na prevenção de úlcera por pressão em pacientes com lesão medular. *Rev. Bras. Enferm* [online]. 2011;64(3): 494-500.
21. Diccini S, Camaduro C, Iida LI. Incidência de úlcera por pressão em pacientes neurológicos de hospital universitário. *Acta paul enferm* [online].2009;22(2):205-9.



Received on: 15/04/2014
Required for review: 30/10/2014
Approved on: 08/01/2016
Published on: 03/04/2016

Contact of the corresponding author:
Laelson Rochelle Milanês Sousa
Universidade Federal do Piauí. Campus Ministro Petrônio Portella -
Ininga. Cep:64049-550 – Teresina, PI, Brasil.
E-mail: laelson@hotmail.com