



Evaluation of the risk for pressure ulcers in bedridden elderly at home*

Avaliação de risco para úlcera por pressão em idosos acamados no domicílio

Evaluación del riesgo de úlceras por presión en cama ancianos en el hogar

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ABSTRACT

Objective: To evaluate the risk for pressure ulcers in elderly in their homes, after a period of hospitalization. **Methods:** A longitudinal prospective study conducted in the homes of 40 elderly identified with risk for pressure ulcer (PU) at hospital discharge, using the Braden Scale. The monitoring was conducted over four home visits, in the period between June and August of 2010, in Fortaleza (CE) and its metropolitan region. **Results:** The majority of the elderly were female (65%) with a medical diagnosis of cerebral vascular accident (55%). In the first and second visits, 55% and 40% of the elderly, respectively, presented high risk for PU, and the incidence of PU was 22.5%. The association of the risk scores presented significant association in the first three visits. **Conclusion:** The risk for PU development was higher in the first two weeks, after hospital discharge, but diminished for the remainder of the visits.

Keywords: Aged; Pressure ulcer; Risk factors; Nursing; Home visit

RESUMO

Objetivo: Avaliar o risco para úlcera por pressão em idosos no domicílio, após período de internação hospitalar. **Métodos:** Estudo longitudinal prospectivo realizado no domicílio de 40 idosos identificados na alta hospitalar, com risco para úlcera por pressão (UP), mediante aplicação da escala de Braden. O acompanhamento foi realizado em quatro visitas domiciliares, no período entre junho e agosto de 2010, em Fortaleza (CE) e região metropolitana. **Resultados:** A maioria dos idosos era do sexo feminino (65%) e com diagnóstico médico de acidente vascular encefálico (55%). Nas primeira e segunda visitas, 55% e 40% dos idosos, respectivamente, apresentaram risco elevado para UP e a incidência de lesão foi de 22,5%. A associação dos escores de risco apresentou associação significativa nas três primeiras visitas. **Conclusão:** O risco para o desenvolvimento de UP foi mais elevado nas duas primeiras semanas, após a alta hospitalar, mas diminuindo no decorrer das visitas.

Descritores: Idoso; Úlcera por pressão; Fatores de risco; Enfermagem; Visita domiciliar

RESUMEN

Objetivo: Evaluar el riesgo a úlcera por presión en ancianos en el domicilio, después del período de internamiento hospitalario. **Métodos:** Estudio longitudinal prospectivo realizado en domicilio de 40 ancianos identificados en el alta hospitalaria, con riesgo a úlcera por presión (UP), mediante aplicación de la escala de Braden. El acompañamiento fue realizado en cuatro visitas domiciliarias, en el período entre junio y agosto de 2010, en Fortaleza (CE) y región metropolitana. **Resultados:** La mayoría de los ancianos era del sexo femenino (65%) y con diagnóstico médico de accidente cerebro vascular (55%). En la primera y segunda visitas, 55% y 40% de los ancianos, respectivamente, presentaron riesgo elevado para UP y la incidencia de lesión fue del 22,5%. La asociación de los scores de riesgo presentó asociación significativa en las tres primeras visitas. **Conclusión:** El riesgo para el desarrollo de UP fue más elevado en las dos primeras semanas, después del alta hospitalaria, pero fue disminuyendo en el transcurrir de las visitas.

Descriptores: Anciano; Úlcera por presión; Factores de riesgo; Enfermería; Visita domiciliar

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INTRODUCTION

Advanced age produces intense changes in the human body, making it more vulnerable to diseases and injuries, as well as producing sequels and long term hospitalizations⁽¹⁾. The profile of the elderly population is constituted of personal characteristics that may lead an individual to develop a pressure ulcer (PU), as changes in the structure of the skin, impaired mobility and cognitive pattern changed. The elderly are highlighted among individuals with PU, because they are more affected by degenerative diseases; they have problems of urinary incontinence; and their use of medications which may alter their metabolism⁽²⁾.

The Brazilian demographic transition presents unique characteristics that must be learned, mediated by studies that considers its specificity. Moreover, health care for the elderly, when compared to other age groups, is the most costly. According to data provided by the Unified Health System (UHS), 18.6% of all hospitalization were registered in the age group of 60 years or more, for a segment of the elderly of only 8.5% of the country total population; compared to 20.9% of hospitalization in the range of zero to 14 years, for a population of 29.6%; and 60.5% of hospitalizations in the range of 15 to 59 years, representing 61.8% of the total population⁽³⁾.

In primary care, the nursing process directed to the elderly is still a rarely discussed subject, although the Ministry of Health proposes protocols in Primary Care Brochure whose focus is the elderly. In practice, the burden of care is still preponderant, and the degree of dislocation within the health system hinders the operationalization in any logic-based assessment capable of encompass multiple aspects of the elderly life. Faced with this problematic, preventive actions are the proposed tools to decrease the risk of PU in elderly⁽⁴⁾.

Advocated in several studies, preventive measures include simple actions and require few expenses, such as the use of predictive scales for PU. Besides the risk assessment as a preventive measure, the most effective actions to prevent these injuries stands out: a decrease in pressure over the bony prominences, by moving and changing positions; and the use of appropriate mattresses⁽⁵⁻⁸⁾.

The Agency for Healthcare Research and Quality recommends that patients should be evaluated for the development of an injury during hospitalization and also periodically after hospital discharge. In long term treatment, it is observed that most of pressure ulcers occurs after hospitalization, for this reason it is suggested that patients are monitored weekly during the first 4 weeks and finally, monthly or when the patient's condition change^(9,10).

Therefore, it is necessary that nurses participating in visits also incorporate into their practice the ethical care issues, considering the biopsychosocialspiritual dimension of the elderly and not only his injury. It is believed that this ethical dimension of care, need to be included by professionals, the reflection on the resoluteness of their practice in the institutional context, to obtain positive results and improving the quality of life of the elderly population⁽¹¹⁾.

Thus, home care performed by nurses of the Family Health Strategy emerges as one of the strategies of health care already established in some developed countries and rapid growth in Brazil. This care practice began as one of the actions planned for families who had, in their homes, elderly bedridden, patients with sequels of chronic degenerative disease, terminal and post-surgical as well as femur fractures. It appears that the impairment of the independence of the elderly can result in greater need of care.

The World Health Organization defines home care as the provision of health services by formal and informal providers, who promote, restore and maintain comfort, the functionality of the body and health of persons at a maximum level, including care for an honorable death. Home care services can be classified into the categories of preventive, therapeutic, rehabilitative, long term monitoring and palliative care⁽¹²⁾.

Given the costly nature of the clinical effects of UP, the adoption of preventive measures against this condition in time has become crucial, because approximately 95% of these ulcers can be prevented. In this circumstance, the first step in the implementation of preventive measures is the recognition of patients at risk of developing PU^(13,14).

Given the PU problematic in the elderly, this study aimed to assess the risk for PU in elderly at home, after a hospitalization period, upon application of the Braden Scale.

METHODS

This is a prospective longitudinal study, developed with a population composed by 520 elderly hospitalized in five public hospitals and one private in the State of Ceará, which were followed-up by researchers until the time of hospital discharge. Data collection occurred between June and August 2010, during the first two months of recruitment and assessment in the hospital, and the last month for assessment at home. Among these subjects, we selected a sample of 40 individuals, after the application of the following eligibility criteria: provide total or partial dependence; have some disease that promotes inability to walk; being classified as having chronic disease or at risk for PU, according to

Braden scale; reside in the city of Fortaleza – CE or metropolitan area. On the other hand, the exclusion criteria were the presence of PU at hospital discharge and rehospitalization.

The selection occurred at the time of hospital discharge, given the partial or total dependence condition of the patient, since this condition suggests the need for a caregiver, formal or informal. For this, we considered the classification of elderly patients with partial dependence, who were in a situation in which not only needed supervision, but also effective help of the caregivers in performance of some basic activities such as bathing, taking medications, taking care of finances, going to the doctor, but who were not confined to bed temporarily or permanently. The elderly with total dependence were those who needed daily intensive care of caregivers, not having ability to perform activities of daily living. These are usually confined to bed and chair, showing cognitive impairment and uncontrolled sphincter⁽¹⁵⁾.

The Braden Scale developed by Barbara Braden and Nancy Bergstrom in 1987, was validated in Brazil and assists in assessing risk for PU and general conditions of the patient, also assisting in the selection of preventive and curative actions of PUs. It is believed that this scale allows an evaluation of several factors related to the occurrence of PU and that the application of this instrument helps the evaluator to conduct a detailed examination of the patient's condition⁽¹⁶⁾.

The scale consists of six subscales: sensory perception, moisture, activity, mobility, nutrition, friction and shear. From these domains, three are clinical determinants of patient exposure to prolonged and intense pressure: sensory perception, activity and mobility. Through the other three, the factors that affect the ability of the tissue to withstand excessive pressure are measured: moisture, nutrition, friction and shear. Each of the scale domains (or subscale) has a standardized quantitative specification of the patient conditions, ranging 1 to 4, with the exception of friction and shear, whose ranging are 1 to 3. The risk rating is divided into: low risk (15 to 16 points), moderate risk (13-14 points), high risk (10 to 12 points) and very high risk (≤ 9 points)⁽¹⁷⁾.

The study follow-up period of the subjects was 30 days, with intervals of 7 days. For each patient, four visits were performed, the first visit in the hospital and the others at home. During the first contact, at hospital discharge, the elderly were invited to participate in the study and, in case of acceptance, their addresses and telephone numbers were registered for future meetings. The risk assessment was performed in all four visits. At

home visit (HV) period, the researchers and the nursing staff of the Basic Health Unit applied the Braden Scale. The professionals of this unit performed the orientations, after the risk assessment and after recording the actions performed by caregivers.

To calculate the sample size and statistical analysis, we consider the following parameters: confidence level of 95%; clinically relevant difference of 20% (represented by the difference between the prevalence of hospitalized elderly with and without risk for acquiring pressure ulcers); and, finally, the prevalence of the phenomenon of 40%, obtained by the number of elderly hospitalized registered by the Interdisciplinary Committee for Prevention and Treatment of Injuries from a referral state hospital. We respected the ethical aspects presented by Resolution No. 196/96 of the National Health Council, with the approval of the research project by the Ethics Research Committee of Dr. Joseph Fleet Institute (No. 2128/2010). Patients or guardians signed a Consent Form, after the invitation to participate in the research.

RESULTS

Data were collected in six hospitals institutions (two state hospitals, three municipal hospitals and one private hospital) and in the homes of patients participating in the study. Regarding the distribution of subjects by institution, 20 (50%) were from state institutions; 17 (42.5%), municipal institutions and 3 (7.5%) of the private institution.

It was identified that the majority of elderly subjects were female (65%) and white (45%). Regarding marital status, most were widowed (52.5%). As to the reason for hospitalization, 55% of elderly were hospitalized with a diagnosis of cerebral vascular accident. Regarding the caregiver, the elderly son/daughter were the main subjects who took this responsibility (47.5%). The mean age was 77.6 years with a SD \pm 11.3 years, as shown in the data of Table 1.

The repeated measures analysis showed a violation of the principle of sphericity of variances between days of application of the protocol. The groups showed homogeneity of variances, both daily intervention and globally. In the analysis with Greenhouse-Geisser correction was identified statistically significant difference between the scores of the Braden Scale per day ($p < 0.001$). This finding was confirmed by the Wilks Lambda ($p = 0.003$). In the analysis of contrasts, significant differences were observed only when comparing the scores of the first 3 days of intervention.

Table 1. Characteristics of elderly participating in the study. Fortaleza-CE, 2010

Variable	n(%)	p-value
Gender		
Male	14(35)	0.022**
Female	26(65)	
Skin color		
Brown	16(40)	0.291***
White	18(45)	
Black	6(15)	
Marital Status		
Married	13(32.5)	0.419***
Widow	21(52.5)	
Single	4(10)	
Divorced	2(5)	
Medical diagnosis		
CVA*	22(55)	0.490***
Fractures	9(22.5)	
Other causes	9(22.5)	
Care givers		
Spouse/wife	5(12.5)	0.608***
Son/daughter	19(47.5)	
Daughter-in-law/ son-in-law	4(10)	
Grandchild	3(7.5)	
Others	6(15)	
Age	Mean 77.6	SD 11.3
	P25 67	P50 78
	P75 86	0.379****

* Cerebral vascular accident (CVA); ** – Chi-square; *** – Fisher test; **** – Mann-Whitney.

Table 2 – Distribution of risk scores, as Braden scale during bedridden elderly visits at home. Fortaleza-CE, 2010.

PU risk classification	n(%)	p-value*
1 st Visit		
Low risk	6(15)	0.0309
Medium risk	9(22.5)	
High risk	22(55)	
Very high risk	3(7.5)	
2 nd Visit		
Low risk	10(25)	0.0481
Medium risk	9(22.5)	
High risk	16(40)	
Very high risk	5(12.5)	
3 rd Visit		
Low risk	15(37.5)	0.0156
Medium risk	9(22.5)	
High risk	12(30)	
Very high risk	4(10)	
4 th Visit		
Low risk	15(37.5)	0.213
Medium risk	10(25)	
High risk	10(25)	
Very high risk	5(12.5)	

*Fisher-Freeman – Halton Test

In Table 2, the first and second considerations observed that more than half of the elderly had a significantly greater number of high risk or very high risk. There was a greater concentration in the classification of patients “low risk” in the third and fourth assessments. During follow-up, one subject was re-hospitalized and could not attend to the last assessment.

During assessments performed in the visits, they detected the presence of PU in nine elderly. The PU were observed from the second visit, ie on average 14 days after hospital discharge. The most expressive number was observed in the second week: six individuals with PU. In the third week, another case emerged, and in the last week, two more injuries. The elderly evaluated presented an incidence of 22.5%. All injuries that affected the elderly were classified as grade 1.

DISCUSSION

Risk assessment for PU is gaining space in everyday practice of health professionals as a result of the consequences of an injury, such as increased length of hospitalization, mobility impairment, increased risk of infection and sepsis, besides the high cost for treating these injuries. In elderly, these factors may be accentuated because of the clinical status in the hospital and in home environments. In these contexts, the elderly has a higher chance of developing postural instability, gait alterations, slower movements speed, decreased cerebral blood flow, decreased nerve conduction velocity, short reaction time and reduced size and number of neurons⁽¹³⁾.

Advanced age favors the formation of PU due to the loss of skin elasticity, insufficient skin hydration and loss of sensitivity, among other factors that may be aggravated if associated with chronic diseases such as hypertension and diabetes mellitus, as well as the use of vasoactive drugs that hinder a good tissue perfusion. In a study conducted in a Family Health Program with 40 elderly subjects, we investigated the nursing diagnosis “impaired skin integrity,” in which one might observe the following defining characteristics: breaking the skin (epidermis) in 85% of cases and destruction of skin layers on 55% of them. These characteristics are similar to the risks for PU. These related factors are common to the elderly evaluated in our study as changes in skin turgor, impaired immune system and mechanical factors⁽¹⁸⁾.

The majority of the elderly were female, the fact can be justified by the increased survival rate of women and studies show that females are who most seek health services, contributing to the detection and treatment of disease. However, one should take into account a study evaluating the risk for PU, in which there was a higher

incidence of males (56.6%) in a population of patients hospitalized at a university hospital with a rate of 78.6% of the subjects older than 60 years⁽¹⁹⁾.

The prevalence of cases of CVA in the elderly is also reported in other studies in Gerontology. The CVA cause sequels to daily life, which are generated by illness and causes dependence in these patients, especially for their family. Considering these findings, their son/daughter composed the majority of these elderly caregivers who assisted in performing their daily activities. In a study conducted with caregivers of patients with CVA, we identified the family presence as their main care agent. Among the 34 caregivers evaluated in the study above, we observed a relationship of care developed by them, with emphasis on hygiene in the shower (61.3%), a change of clothes (97.1%) and stimulation for physical activity (58.8%). However, a worrying fact was that few realized the prevention of decubitus ulcer (41.9%) and changing positions (26.5%)⁽²⁰⁾.

The second most frequent diagnosis was fractures, hip fracture is more frequently in the elderly, with 33% incidence of death in the first year after its occurrence. Analyzing the anthropometric measurements with direct and indirect measures, the authors were able to observe a relationship between the estimated measurements and nutritional status, which directly interferes in the activities of the patients. The act of walking among patients affected from fractures becomes more difficult, requiring physiotherapy treatment for rehabilitation of joints and movements⁽²¹⁾.

The HV performed by professionals from the Family Health Strategy provides these elderly caregivers a moment of reflection on the care and undertaking new actions that can be implemented to promote the health of these individuals. Often the burden of the health team, is discharged on the caregiver, because of their daily approximation with the elderly, the formation of emotional bonds and the absence of a social support network. The emergence of PU is not always emphasized in the orientations given by the nursing staff at the time of hospital discharge. Noting the population evaluated, the risk for PU at hospital discharge and impaired mobility are factors that must be analyzed by the team and caregiver.

We identified studies that reported the investigation of PU focusing on elderly in hospitals environment and in long-stay institutions. Similarly, studies on the prevalence and incidence of PU in the home environment in Brazil are scarce compared with data from patients in other care environments such as intensive care units and medical clinics. Recent studies show an overall prevalence of 6% in the general care of acute status and 42% among patients in intensive care units. A study evaluating the risk of PU at home,

identified a prevalence of 19.1% of PU and 70.2% of risk of injury in the individuals. Although these data only reflect the seriousness of the event in hospitalized patients, this information provides an understanding of the prevalence of PU in the home environment^(2, 21-23).

The elderly presents risk factors for developing PU that can be aggravated during and after hospitalization, as the presence of comorbidities, nutritional changes and cognitive deficits. The instructions given at hospital discharge are necessary to reduce the risk of developing PU at home. Generally, the professionals of the hospital environment limit their orientations to the current problem and forget points as the prevention of PU at home. In addition, the supervision performed by professionals of the Basic Health Unit, is often focusing in following the post-hospitalization needs and referring to that moment at home. Thus, the PU only demand attention when it presents advanced stages and requires more complex care.

The results showed the presence of PU in nine elderly (22.5%), especially in the second week after hospitalization. The emergence of PU in these elderly was classified as very high risk, as the Braden Scale, in the first and second visits. The intrinsic and extrinsic factors must be evaluated daily to foresee an injury and thereby accomplish prophylactic action. The actions of the caregivers may have contributed to a small percentage of PU in the subjects. The exposure of the elderly at a previous hospitalization favored raising the risk for development of PU and injury.

The time to develop a PU is not precise, varying according to the patient and their clinical condition. The literature shows the emergence of PU after 24 hours of hospitalization, as well as a period between 10 and 15 days after hospitalization⁽²⁴⁾.

Mobility is also being assessed by nurses through PU prevention protocols and systematization of nursing care. Studies show high rates of impaired mobility in bed. A study of hospitalized patients found 100% of this diagnosis in patients in intensive care undergoing transplantation. Another study evaluated 94 elderly people in long-stay institutions and high scores were observed in mobility with Alpha-cronbach (0.6591 and 0.6631), in the first and last assessments, showing relevance to risk assessment. Other risk assessment protocols for PU also present mobility as a risk factor^(6, 25-28).

CONCLUSION

We conclude that the risk assessment for pressure ulcers in the elderly at home after hospital discharge, was showed as one more strategy for health promotion of the population. The high risk for PU in the first and second visit emphasized the need for orientations for

the prevention of PU at home provided at the time of hospital discharge.

The degree of risk of PU for this elderly group decreased from the third week of assessment. This indicates improvement of the general condition and reduction of risk factors. Moreover, the HV was considered a support for these caregivers with orientations aimed at preventing the PU, with focus on changing their position, the stimulation of ambulation, proper nutrition and the use of prevention devices such as air mattresses.

The prevention protocols are already being used in hospitals institutions which are based in researches

and systematic reviews of the best practices for the prevention and treatment of PU. Thus, after this study, we suggest the use of the Braden Scale within BHU, as support for the assessment of these elderly bedridden.

The fragility of communication of the reference service and counter reference between the hospital and BHU is explicit, requiring exchange of information beyond usual, related to the disease that caused hospitalization in the elderly.

One can conclude that reinforcing actions performed for the prediction of an injury to the elderly, after hospitalization should focus the first two weeks at home, with preventive actions.

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