

Prevalence of skin tears among hospitalized patients with cancer

PREVALÊNCIA DE LESÕES POR FRICÇÃO EM PACIENTES HOSPITALIZADOS COM CÂNCER

PREVALENCIA DE LESIONES POR FRICCIÓN EN PACIENTES HOSPITALIZADOS CON CÁNCER

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ABSTRACT

This study aimed to analyze the prevalence of skin tears (ST) among hospitalized oncology patients and associated demographic and clinical variables. This is an epidemiological cross-sectional study type, performed at Octavio Frias de Oliveira State of São Paulo Cancer Institute. All adult patients hospitalized from April 10th to 18th 2010 were evaluated by interview and physical examination. Chi-square test was used to compare demographic and clinical variables between patients with and without ST. Five patients among 157 had nine skin tears, resulting in a prevalence of 3.3%. Among demographic variables, only number of children showed statistically significant difference ($p=0.027$) between groups. Clinically, patients with ST had lower Karnofsky scores ($p=0.031$), lower scores at Braden Scale ($p=0.026$) and less collaborative behaviors ($p=0.042$) when compared to patients with no lesions. This study contributes to a better knowledge of ST in oncology patients.

DESCRIPTORS

Prevalence
Inpatients
Neoplasms
Friction
Wounds and injuries
Oncologic nursing

RESUMO

Esse estudo objetivou identificar a prevalência de lesões por fricção (LF) em pacientes hospitalizados com câncer e avaliar os fatores demográficos e clínicos associados ao seu desenvolvimento. Estudo epidemiológico, de corte transversal, realizado no Instituto do Câncer do Estado de São Paulo Octavio Frias de Oliveira. Todos os pacientes adultos, internados entre 10 e 18 de abril de 2010, foram avaliados por meio de entrevista e exame físico. Utilizou-se o teste Qui-Quadrado para comparação das variáveis demográficas e clínicas entre pacientes com e sem LF. Foram avaliados 157 pacientes: cinco apresentaram nove LF, acarretando prevalência de 3,3%. Quanto às variáveis demográficas, houve diferença estatisticamente significativa somente para o número de filhos ($p=0,027$). Clinicamente, pacientes com LF apresentaram menores escores na escala de Karnofsky ($p=0,031$) e na Escala de Braden ($p=0,026$), além de comportamento pouco colaborativo ($p=0,042$). Esse estudo contribui para um melhor conhecimento acerca das LF em pacientes com câncer.

DESCRIPTORIOS

Prevalência
Pacientes internados
Neoplasias
Fricção
Ferimentos e lesões
Enfermagem oncológica

RESUMEN

Este estudio tuvo como objetivo evaluar la prevalencia de lesiones por fricción (LF) en pacientes ingresados con cáncer y variables demográficas y clínicas asociadas. Estudio epidemiológico fue desarrollado en el Instituto de Cáncer del Estado de São Paulo Octavio Frias de Oliveira. Los pacientes adultos ingresados del 10 al 18 de abril de 2010 fueron evaluados por medio de entrevista y examen físico. El teste de Qui-cuadrado fue usado para comparar las variables demográficas y clínicas entre los grupos de pacientes con y sin LF. Cinco entre los 157 pacientes evaluados presentaron nueve LF, con prevalencia de 3,3%. Solamente el número de hijos presentó diferencia estadística significativa ($p=0,027$) cuanto a variables demográficas. Clínicamente, pacientes con LF presentaron puntuaciones más bajas en las escalas de Karnofsky ($p=0,031$) y Braden ($p=0,026$) y menos comportamientos colaborativos ($p=0,042$). El estudio contribuye para el mejor conocimiento a cerca de LF en pacientes con cáncer.

DESCRIPTORIOS

Prevalencia
Pacientes internos
Neoplasias
Fricción
Heridas y traumatismos
Enfermería oncológica

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INTRODUCTION

Skin tears (ST) are traumatic injuries, caused by isolated friction or accompanied by shear, and particularly affect the elderly. They are related to the separation between the epidermal and dermal layers (partial thickness wounds) or to the separation of both from underlying layers (total thickness wounds)⁽¹⁻⁵⁾.

The most common injury sites are the upper extremities, responsible for 80%. Other common areas are the lower extremities, back and gluteal region⁽⁵⁻⁶⁾.

Some patients are at greater risk for the occurrence of ST, including weak and dependent people, with mobility and diet problems, people with weak skin, such as elderly people and terminal patients. Dependent patients, who need help with their activities of daily living, are also vulnerable. Their injuries can result from routine activities like bathing and grooming and take place during the transfer/repositioning process^(1-3,5-7).

As a result of aging, dermal thickness reduces by almost 20%⁽⁷⁾, accompanied by a decrease in sweat production through the sweat and sebaceous glands, reduced pain perception, tactile sensitivity, inflammatory response and ability to synthesize collagen.⁽¹⁻⁴⁾ In addition, many elderly people suffer from comorbidities that demand medication intake, which can compromise skin integrity, such as steroidal anti-inflammatory agents⁽¹⁻²⁾.

It is estimated that approximately 1.5 million ST affect institutionalized elderly people in the USA per year⁽⁸⁾ and that, by 2030, there will be 8.1 million people at high risk of developing these injuries in the same country⁽⁸⁾. In ST prevalence research, authors^(4-5,9) indicate that they are more frequent than pressure ulcers and burns.

No studies were found in the literature that associate the occurrence of ST in cancer patients. Besides the above aspects, which can also be present in this kind of patients, some authors⁽¹⁰⁻¹¹⁾ report skin alterations as a consequence of oncology treatment and the disease's progression, entailing greater vulnerability to trauma and, consequently, to ST.

Despite the long history of this problem, high ST morbidity levels, increased longevity and rising incidence rates of chronic-degenerative diseases, particularly cancer, have stimulated research development on this kind of wounds, with a view to the systemization of their nomenclature, etiology and classification; prevention and treatment. No study on ST was found in Brazil, using this terminology or not, particularly among cancer patients.

Thus, the aim in this study was to identify the prevalence of ST in hospitalized cancer patients and assess the demographic and clinical factors associated with their development in this clientele.

METHOD

This epidemiological and exploratory cross-sectional research was performed at the hospitalization and intensive care units of *Instituto do Câncer do Estado de São Paulo Octavio Frias de Oliveira* (ICESP), which offered 270 active beds (44 in intensive care and 226 in hospitalization) at the time of data collection.

Inaugurated in May 2008, the ICESP is a social health organization the São Paulo State government created in partnership with *Fundação Faculdade de Medicina da Universidade de São Paulo*. The institute is one of the largest specialized cancer treatment hospitals in Latin America and exclusively attends patients through the Unified Health System (SUS), forwarded from health services that are not specialized in oncology. Besides patient care, the ICESP is a teaching and research hospital, including studies on new drugs and innovative cancer treatments.

Initially, the project received approval from the Research Ethics Committee at University of São Paulo School of Nursing (Process No. 859/2009/CEP-EEUSP), followed by the Institute's authorization. All ethical aspects of research involving human beings were complied with.

Sample

All patients hospitalized at the time of data collection (on April 10th- 18th 2010) were included in the study, provided that they complied with the following criteria: age 18 years or older, being hospitalized at any of the specified units, not having injuries of other causes and accepting to participate in the study through the signing of the Informed Consent Term. It is highlighted that no distinction in hospitalization time was made to include patients in the sample.

As it was impossible to collect data from all patients hospitalized in the institution's active beds on a single day, to comply with the study objectives and avoid the repeated assessment of the same patient, the researchers decided to assess 30 beds per day (10 per shift: morning, afternoon and night) for nine consecutive days during the study period. Thus, 183 patients were evaluated (not all 270 beds were occupied during data collection), 26 of whom were excluded due to wounds of other causes. Hence, in total, 157 patients were analyzed.

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Data collection

With the patients' agreement to participate in the study, consultation of patient files, interviews with patients and/or relatives and physical examination were used to collect sociodemographic and clinical data.

One of the lead researchers (who worked at the institution at the time of data collection) only interviewed the family members if patients were in no physical and/or cognitive conditions to answer.

The physical examination involved visual inspection of the skin, specifically to look for injuries. With a view to a systematic examination, without ignoring any body part, first, the patient was placed in supine position, his/her clothes were removed and the following regions were inspected: head, chest, abdomen, genitals, upper and lower limbs; then, in prone position: head, back, gluteal region, upper and lower limbs.

Two researchers collected the data: the stomal therapist (one of the authors) – the sole responsible for assessing all wounds found and classify the ST; and one undergraduate student who, for the sake of homogeneous data collection, was trained: in theory, through an optional undergraduate subject on wound prevention and treatment (she participated in a specific seminar on ST); and in practice through clinical work at the ICESP hospitalization units, under the stomal therapist's supervision, for three consecutive days before data collection started.

Data collection instruments

The following instruments were used for data collection: a questionnaire for sociodemographic and clinical information; the Karnofsky Scale⁽¹²⁾; the Braden Scale⁽¹³⁻¹⁴⁾ and the Brazilian Portuguese version of the STAR – Skin Tear Classification System⁽¹⁵⁾.

Questionnaire

The questionnaire to characterize the hospitalized cancer patients⁽¹⁶⁾ included the following demographic information: age, gender, race/color, origin, marital status, number of children, presence of caregiver, education, work and monthly family income; and clinical information: oncology diagnosis, presence of metastasis, oncology treatment (surgery, radiotherapy and/or chemotherapy), drug addiction, medication, visual and auditory acuity levels, body mass index, food and fluid acceptance (asked to the patient and subjectively classified as adequate, insufficient or exaggerated), vesicointestinal situations, incontinence devices, physical mobility, walking, edema, presence of adhesive dressings and type of behavior (assessed according to the following subjective criteria: aggressive reaction to daily care, psychomotor agitation, collaborative or non-responsive).

Karnofsky Scale

As ST mainly affect weakened and dependent people, the Karnofsky scale was chosen to assess patients' dependence level, assessing their performance of activities of daily living.

This scale, which was part of the study's clinical aspects, was developed by Karnofsky et al.⁽¹²⁾ and no reference was identified on its formal adaptation and validation in Brazil. Its score ranges from 0 to 100 (100 corresponds to the absence of complaints and symptoms and 0 to death). According to the original scale authors⁽¹²⁾, patients can be classified as follows: individual apt for normal activities and work, without and special care need (80 to 100 points); individual inapt for work but apt to live at home and take care of many personal needs, requiring quite variable assistance and support (50 to 70 points); and individual inapt for self-care, demanding hospital or specialized care, with rapid disease progression (0 to 40 points). For statistical analysis purposes, that classification was used in this research.

Braden Scale

Developed by Bergstrom et al. in 1987⁽¹³⁾, and adapted to Portuguese and validated by Paranhos and Santos in 1999⁽¹⁴⁾, this scale was conceived to optimize prevention strategies for pressure ulcer.

The Braden scale consists of six subscales that address intrinsic and extrinsic factors which, when present, indicate the risk of developing pressure ulcers:

- *sensory perception* – measures the individual's capacity to feel and relieve the discomfort the pressure provokes;
- *activity* – evaluates the frequency of the individual's movements out of bed;
- *mobility* – refers to movements in bed, so as to redistribute the pressure;
- *humidity* – assesses the individual's degree of exposure to potential sources of humidity;
- *tear and shear* – assesses the extent to which the individual is exposed to shear strength.

Each subscale is scored according to the problems the patient presents. Except for the tear and shear subscale, which ranges from 1 to 3, the other subscales range from 1 to 4, and the total score range is between 6 and 23. Scores of 16 or lower indicate risk for pressure ulcer. The lower the score, the greater the risk exposure⁽¹³⁾.

STAR – Skin Tear Classification System

The skin tears found were classified with the help of the Brazilian version of the STAR – Skin Tear Classification

System. Published in 2007⁽⁴⁾ and revised in 2010 by Carville et al.⁽¹⁷⁾, the STAR - Skin Tear Classification System was elaborated to obtain a valid and universally accepted skin tear classification system. Strazzieri-Pulido and Santos⁽¹⁵⁾ adapted and validated the STAR – Skin Tear Classification System in Brazilian Portuguese in 2010. Like the original instrument, the Brazilian Portuguese version includes three parts:

- *Guidelines of the STAR – Skin Tear Classification System* – with six topics related to care for the wound and neighboring skin.

- *STAR – Skin Tear Classification System* – comprises five photographs related to the five ST categories, described as follows: *Category 1a* – a skin tear where the skin flap can be realigned to the normal anatomical position (without undue stretching) and the skin or flap color is not pale, dusky or darkened; *Category 1b* – a skin tear where the skin flap can be realigned to the normal anatomical position (without undue stretching) and the skin or flap color is pale, dusky or darkened; *Category 2a* – a skin tear where the skin flap cannot be realigned to the normal anatomical position (without undue stretching) and the skin or flap color is not pale, dusky or darkened; *Category 2b* – a skin tear where the skin flap cannot be realigned to the normal anatomical position (without undue stretching) and the skin or flap color is pale, dusky or darkened; *Category 3* – a skin tear where the skin flap is completely absent;

- *Glossary of the STAR – Skin Tear Classification System* – located on the back of the instrument, includes the definition of ST and related technical terms.

Statistical Analysis

For this study, prevalence or point-prevalence was defined as the total number of individuals affected by a given disease at a single point in time⁽¹⁸⁾. It should be highlighted that, in this kind of study, measures do not need to be taken from all patients at the same time⁽¹⁸⁾. The following formula was used for calculation purposes⁽¹⁸⁾:

Prevalence coefficient =

$$\frac{\text{No of known cases of a given disease} \times 100}{\text{Population}}$$

Considering the exploratory design and, although some of the variables of interest were established in the introductory chapter, due to the lack of specific research on ST in hospitalized cancer patients, all demographic and clinical variables surveyed were included in the comparative tests between the groups with and without ST. For

these comparisons, the Chi-Square test was used, with a significance level of 5%. Given the low prevalence level, logistic regression analysis was not possible.

RESULTS

Among the 157 patients assessed: five revealed nine ST (prevalence of 3.3%); two showed three injuries each. Among the nine ST found, category 3 was present five times, while the remaining categories (1a, 1b, 2a and 2b) each appeared one time.

As for the characteristics of the patients with ST, three were women and three were over 60 years of age (Table 1). The oncology diagnoses were distributed among head and neck (2), colorectal (2) and bladder (1) cancer.

Table 1 – Comparison between patients with and without ST according to demographic variables - São Paulo, 2010.

Variable	Without ST(%)	With ST (%)	P-Value
Gender			
Male	81 (53.3)	2 (40.0)	0.667
Female	71 (46.7)	3 (60.0)	
Age			
≤ 50 years	41 (27.0)	2 (40.0)	0.332
51 to 60 years	44 (29.0)	-	
61 to 70 years	42 (27.6)	1 (20.0)	
> 70 years	25 (16.4)	2 (40.0)	
Work			
Does not work	151 (99.3)	5 (100.0)	> 0.999
Works	1 (0.7)	-	
Number of Children			
None	19 (12.5)	2 (40.0)	0.027
One	27 (17.8)	3 (60.0)	
Two	28 (18.4)	-	
Three	30 (19.8)	-	
Four	28 (31.5)	-	
Five	1 (1.3)	-	
Caregiver			
No caregiver	64 (42.0)	1 (20.0)	0.649
Caregiver	88 (58.0)	4 (80.0)	

Table 1 shows no statistically significant difference concerning demographic variables, except for the number of children (p=0.027).

Table 2 shows statistically significant differences for the clinical variables Braden Scale (p=0.026), Karnofsky Index (p=0.031) and type of behavior (p=0.042). Clinically, patients with ST scored lower on the Braden scale when compared with patients without wounds (p=0.026). There were more patients with Karnofsky Index results until 40 (inapt for self-care) and less patients with collaborative behavior in the group with ST than in the group without ST (p=0.031 and p=0.042, respectively).

Table 2 – Comparison between patients with and without ST according to clinical variables - São Paulo, 2010.

Variable	Without ST (%)	With ST (%)	P-Value
Metastasis			
No	100 (68.8)	3 (60.0)	> 0.999
Yes	52 (34.2)	2 (40.0)	
Surgery			
No	62 (40.8)	2 (40.0)	> 0.999
Yes	90 (59.2)	3 (60.0)	
Chemotherapy			
No	62 (40.8)	3 (60.0)	0.65
Yes*	90 (59.2)	2 (40.0)	
Radiotherapy			
No	104 (68.4)	3 (60.0)	0.654
Yes	48 (31.6)	2 (40.0)	
Braden Scale			
> 18 (No Risk)	79 (52.0)	-	
15 a 18 (Low Risk)	24 (15.8)	1 (20.0)	0.026
13 a 14 (Moderate Risk)	19 (12.5)	1 (20.0)	
10 a 12 (High Risk)	11 (7.2)	-	
≤ 9 (Very High Risk)	19 (12.5)	3 (60.0)	
Edema			
No	96 (63.2)	2 (40.0)	0.365
Yes	56 (36.8)	3 (60.0)	
Food/Fluid Acceptance			
Adequate	51 (33.6)	1 (20.0)	> 0.999
Insufficient	101 (66.4)	4 (80.0)	
Bladder and bowel situation			
Continent	81 (53.3)	1 (20.0)	
Fecal/ anal incontinence	6 (3.9)	-	0.157
Urinary incontinence	17 (11.2)	-	
Fecal and urinary incontinence	48 (31.6)	4 (80.0)	
Physical Mobility			
Normal	90 (59.2)	1 (20.0)	
Decreased	57(37.5)	3 (60.0)	0.065
Absent	5 (3.3)	1 (20.0)	
Walking			
Normal	51 (33.6)	-	
Walking	58 (38.2)	2 (40.0)	0.188
Does not walk	43 (28.3)	3 (60.0)	
Karnofsky Index			
0 a 40 (Inapt for Self-Care)	75 (49.9)	5 (100.0)	
50 a 70 (Inapt for Work)	61 (40.1)	-	0.031
80 a 100 (Apt for Normal Activity and Work)	16 (10.5)	-	
Behavior			
Psychomotor Agitation	7 (4.6)	1 (20.0)	
Collaborative	140 (92.1)	3 (60.0)	0.042
Non-responsive	5 (3.3)	1 (20.0)	
Adhesive Dressing			
No	10 (6.6)	-	> 0.999
Yes	142 (93.4)	5 (100.0)	

Variable	Without ST (%)	With ST (%)	P-Value
Body Mass Index			
Adults (younger than 60 years)			
≤ 18.49 (Thin)	14 (8.0)	1 (20.0)	
18.50 to 24.99 (Normal Weight)	37 (21.0)	-	
25.00 to 29.99 (Pre-Obese)	29 (16.0)	1 (20.0)	
≥ 30.00 (Obesity)	10 (6.0)	-	0.549
Elderly (older than 60 years)			
< 23.00 (Low Weight)	37 (21.0)	1 (20.0)	
23.00 to 27.99 (Normal Weight)	37 (21.0)	1 (20.0)	
28.00 - 29.99 (Overweight)	6 (3.0)	1 (20.0)	
≥ 30.00 (Obesity)	7 (4.0)	-	

*Only four patients were receiving chemotherapy drugs during data collection. ST were not identified in any of them.

DISCUSSION

The study that analyzed the prevalence of ST in hospitalized cancer patients in inedited in our context, not only because a recently established nomenclature^(4,15) is used, but also because of the clients analyzed, as most literature, mainly internationally, discusses this type of injury in institutionalized elderly people.

Clinical conditions like anorexia/cachexia, malnutrition, anemia, metabolic alterations, reduced physical mobility, advanced age, circulatory disorders and neurologic diseases can compromise skin health⁽¹⁹⁾. Specifically in cancer patients, epidermal, dermal and collagen alterations may be associated with the use of antineoplastic agents⁽¹⁰⁾ and skin reactions are frequent in breast cancer patients submitted to radiotherapy⁽¹¹⁾. In addition, factors like age, smoking, chronic conditions and concomitant antineoplastic treatment can cause changes in this type of patient's healing process⁽¹¹⁾. When comparing the healing time of patients with and without cancer, one study⁽²⁰⁾ found that, at the end of a 24-week treatment period, wounds were healed for 44% of cancer patients and 78% of people without cancer, supporting the greater vulnerability and weakness of cancer patients, and consequently of their skin.

In a descriptive study of chronic patients at ten institutions, aimed at describing the ST, identifying risk factors for their occurrence and determining their healing rate, authors⁽³⁾ found that ten patients displayed 31 ST. These were elderly (mean age 85 years), predominantly white, female, with cognitive impairment and limited mobility, needing help for feeding. All of these patients had a previous history of these lesions. Although developed with other patients, this study also shows characteristics that are similar to hospitalized cancer patients, particularly some precarious global health conditions, especially considering activity and mobility, and therefore representing a greater risk for the development of pressure ulcers. Similarly to the present study, it was also verified that most elderly patients with ST (60%) scored lower on the Braden

scale and, consequently, were at greater risk of developing pressure ulcers⁽³⁾. Self-care inability and the presence of hardly collaborative behavior, present among cancer patients with ST, support their more precarious global health conditions.

Therefore, besides the direct impact of the factors mentioned on the skin and healing of cancer patients, greater limitations to accomplish activities of daily living (31.9% versus 26.9%) and instrumental activities (49.5% versus 42.3%)⁽⁷⁾ among these people should also be considered, representing additional risk factors for the development of ST, which may result from routine activities, whether they are at home, at asylums or in hospital.

On the other hand, hospitalization also represents an important aggravating factor for the deterioration of different aspects, including, besides mobility, nutritional status, which some authors⁽²¹⁾ highlighted and which in this study showed no difference between patients with and without ST.

The basic principle to avoid the occurrence of ST is to protect the skin against additional risks and possible infection⁽²²⁻²³⁾. Moreover, skin hygiene and specific cutaneous lesion care can reduce treatment costs for advanced cancer patients, besides avoiding more complex treatments⁽¹⁹⁾. Therefore, health institutions' use of a common protocol would be the best way to prevent these injuries⁽⁵⁻⁶⁾. It is highlighted that, like pressure ulcers, ST also reflect the quality of care delivery at an institution⁽²²⁾. Effective prevention protocols reduce the time nurses spend on patient delivery, completion of reports, other incidents and notification of physicians and relatives about this kind of injuries⁽²²⁾. A study⁽²²⁾ developed in the United States more than five years ago demonstrated that the implementation of a skin care protocol, using mild cleaning and hydration products, associated with team education and the use of a protection system for high-risk patients, reduced ST at a nursing rehabilitation center.

By 2030, people aged 65 years or older will represent 70% of all cancer patients and 65% of deaths due to the disease, characterizing an important population universe where preventive measures are fundamental to avoid

greater suffering and a worse quality of life⁽⁷⁾. As described earlier, some factors (anorexia/cachexia, malnutrition, anemia, metabolic alterations, reduced physical mobility, circulatory disorders and neurologic diseases), which entail skin and other organ failures⁽¹⁹⁾, are present in advanced cancer patients. Immunological response problems also play a fundamental role in this stage, especially in patients undergoing corticoid and immunosuppressive treatments, also present among the hospitalized cancer patients in the study sample. As a result of the dying process, pathological changes affect the skin and soft tissues, taking the form of color, appearance and integrity changes or as local pain. Health professionals should acknowledge that these changes could be unavoidable and happen despite preventive measures⁽²⁴⁾. Prevention and protection, and mainly comfort measures should certainly be prioritized in that phase.

Despite the limitations, mainly related to the sample – the study was developed at a single specialized hospital, which also impeded more robust statistical tests – but also to data collection from files, which are not always complete, this study contributes to increase the knowledge on ST in cancer patients. Besides the replication of this research at other specialized oncology institutions, incidence studies are needed to assess specific factors that predict their occurrence in these clients. Also, it is fundamental for the nursing team to be prepared to recognize the risk factors associated with these lesions, also in this type of patients, elaborating more adequate preventive measures, which also need to be established better, based on scientifically well-designed studies.

CONCLUSION

Despite a low prevalence rate (3.3%), based on this study, it was concluded that skin tears (ST) also represent a problem for hospitalized cancer patients. These lesions are associated with lesser independence and autonomy for self-care ($p=0.031$), the presence of agitated behavior or non-responsiveness ($p=0.042$), as well as greater risk for the concomitant development of pressure ulcers ($p=0.026$), with shear acting as a common factor in the genesis of both injuries.

REFERENCES

1. Ratliff CR, Fletcher KR. Skin tears: a review of the evidence to support prevention and treatment. *Ostomy Wound Manage.* 2007;53(3):32-4, 36, 38-40.
2. Solway DR, Consalter M, Levinson DJ. Microbial cellulose wound dressing in the treatment of skin tears in the frail elderly. *Wounds.* 2010;22(1):17-9.
3. Payne RL, Martin ML. Defining and classifying skin tears: need for a common language. *Ostomy Wound Manage.* 1993;39(5):16-20, 22-4, 26.
4. Carville K, Lewin G, Newall N, Haslehurst P, Michael R, Santamaria N, et al. STAR: a consensus for skin tear classification. *Prim Intention.* 2007;15(1):8-25.
5. Baranoski S. How to prevent and manage skin tears. *Adv Skin Wound Care.* 2003;16(5):268-70.
6. Xu X, Lau K, Taira BR, Singer AJ. The current management of skin tears. *Am J Emerg Med.* 2009;27(6):729-33.

7. Mohile SG, Xian Y, Dale W, Fisher SG, Rodin M, Morrow GR, et al. Association of a cancer diagnosis with vulnerability and frailty in older medicare beneficiaries. *J Nat Cancer Inst.* 2009;101(17):1206-15.
8. Malone ML, Rozario N, Gavinski M. The epidemiology of skin tears in institutionalized elderly. *J Am Geriatr Soc.* 1991;39(6):591-5.
9. LeBlanc KD, Orsted HL, Keast DH. Best practice recommendations for the prevention and treatment of skin tears. *Wound Care Canada.* 2008;6(1):14-32.
10. Criado PR, Moure ERD, Sanches Junior JA, Brandt HRC, Pereira GLS. Reações tegumentares adversas relacionadas aos agentes antineoplásicos: parte II. *An Bras Dermatol.* 2010;85(5):591-608.
11. Pires AMT, Segreto RA, Segreto HRC. RTOG criteria to evaluate acute skin reaction and its risk factors in patients with breast cancer submitted to radiotherapy. *Rev Latino Am Enferm.* 2008;16(5):844-9.
12. Karnofsky DA, Abelmann WH, Craver LF, Burchenal JH. The use of nitrogen mustard in the palliative treatment of cancer with particular reference to bronchogenic carcinoma. *Cancer.* 1948;1(4):634-56.
13. Bergstrom N, Braden BJ, Laguzza A, Holman V. The Braden scale for predicting pressure sore risk. *Nurs Res.* 1987;36(4):205-10.
14. Paranhos WY, Santos VLGC. Avaliação de risco para úlceras de pressão por meio da escala de braden, na língua portuguesa. *Rev Esc Enferm USP.* 1999;33(n.esp):191-206.
15. Strazieri-Pulido KC, Santos VLGC. Cultural adaptation and validation of STAR Skin Tear Classification System for Brazilians [abstract]. *Wound Ostomy Continence Nurs J.* 2011;38(3S):S92.
16. Strazieri-Pulido KC. Adaptação cultural e validação do instrumento "Star Skin Tear Classification System", para a língua portuguesa no Brasil [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2010.
17. Curtin University of Technology; Silver Chain Nursing Association and School of Nursing and Midwifery. STAR Skin Tear Classification System Guidelines [Internet]. Curtin, Australia; 2010 [cited 2012 Jan 16]. Available from: http://www.awma.com.au/publications/2010_wa_star-skin-tear-tool-g-04022010.pdf
18. Fletcher RH, Fletcher SW. *Epidemiologia clínica: elementos essenciais.* 4ª ed. Porto Alegre: Artmed; 2006.
19. De Conno F, Ventafrida V, Saita L. Skin problems in advanced and terminal cancer patients. *J Pain Symptom Manage.* 1991;6(4):247-56.
20. McNess P, Meneses KD. Pressure ulcers and other chronic wounds in patients with and patients without cancer: a retrospective, comparative analysis of healing patterns. *Ostomy Wound Manage.* 2007;53(2):70-8
21. Trabal J, Leyes P, Forga MT, Hervas S. Quality of life, dietary intake and nutritional status assessment in hospital admitted cancer patients. *Nutr Hosp.* 2006;21(4):505-10.
22. Bank D, Nix D. Preventing skin tears in a nursing and rehabilitation center: an interdisciplinary effort. *Ostomy Wound Manage.* 2006;52(9):38-40,44,46.
23. Le Blanc K, Baranoski S. Skin tears: state of the science: consensus statements for the prevention, prediction, assessment, and treatment of skin tears. *Adv Skin Wound Care.* 2011;24(9):2-15.
24. Sibbald RG, Krasner DL, Lutz J. SCALE: Skin Changes at Life's End. Final Consensus Statement, October 1, 2009. *Adv Skin Wound Care.* 2010;23(5):225-36; quiz 237-8.