Cogitare Enfermagem

ORIGINAL ARTICLE

PREVALENCE OF SKIN TEARS IN INSTITUTIONALIZED OLDER ADULTS

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ABSTRACT

Objective: To analyze the prevalence of skin tears and associated risk factors in institutionalized older adults.

Method: cross-sectional and analytical study, conducted with 54 older adults from a long-term care institution in Teresina, Piauí, through interviews, physical examinations and medical records. Data were collected between August and September 2017. Descriptive and inferential analysis was performed, with student's t-test applied to observe the difference of the means and the Odds Ratios in the association between the outcome and the independent variables.

Results: mean age was 77.4 years, 63.0% men, 77.8% illiterate, 88.9% with comorbidities and 55.6% dependent for activities of daily living. The prevalence of lesions was 20.4%, mostly located in the lower limbs and of category 3, not statistically associated with any risk factor.

Conclusion: there was a high prevalence of skin tears. It should be highlighted that these data help in the knowledge of the epidemiology of these injuries and in the planning of preventive measures.

DESCRIPTORS: Older adult; Wounds and Injuries; Friction; Institutionalization; Prevalence.

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PREVALÊNCIA DE LESÕES POR FRICÇÃO EM IDOSOS INSTITUCIONALIZADOS

RESUMO

Objetivo: analisar a prevalência de lesões por fricção e os fatores de risco associados em idosos institucionalizados.

Método: estudo transversal e analítico, realizado com 54 idosos de instituição de longa permanência em Teresina, Piauí, por meio de entrevista, exame físico e prontuário. Dados coletados entre agosto e setembro de 2017. Realizou-se análise descritiva e inferencial, aplicação do teste t de student para observar a diferença das médias e o Oddis Ratio na associação entre o desfecho e as variáveis independentes.

Resultados: idade média foi de 77,4 anos, 63% homens, 77,8% analfabetos, 88,9% com comorbidades e 55,6% dependentes para atividades da vida diária. A prevalência da lesão foi 20,4%, maioria localizada nos membros inferiores e de categoria 3, não associada estatisticamente a nenhum fator de risco.

Conclusão: observou-se elevada prevalência de lesão por fricção. Destaca-se que estes dados ajudam no conhecimento da epidemiologia dessas lesões e no planejamento de medidas preventivas.

DESCRITORES: Idoso; Ferimentos e Lesões; Fricção; Institucionalização; Prevalência.

PREVALENCIA DE LESIONES POR FRICCIÓN ENANCIANOSEM INSTITUCIÓN DE SALUD

RESUMEN

Objetivo: analizar la prevalencia de lesiones por fricción y los factores de riesgo asociados en ancianos institución de salud.

Método: estudio trasversal y analítico, que se realizó con 54 ancianos de institución de larga permanencia en Teresina, Piauí, por medio de entrevista, examen físico y prontuario. Se obtuvieron los datos entre agosto y septiembre de 2017. Se realizó análisis descriptivo y de inferencia, aplicación del test t de student para observar la diferencia de los promedios y el Oddis Ratio en la asociación entre el desfecho y las variables independientes.

Resultados: la edad media fue de 77,4 años, 63% hombres, 77,8% analfabetos, 88,9% con comorbilidades y 55,6% dependientes para actividades de la vida diaria. La prevalencia da lesión fue 20,4%, mayoría en los miembros inferiores y de categoría 3, no asociada estadísticamente a ningún factor de riesgo.

Conclusión: se observó elevada prevalencia de lesión por fricción. Se destaca que estos datos ayudan en el conocimiento da epidemiologia de esas lesiones y en el planeamiento de medidas preventivas.

DESCRIPTORES: Anciano; Heridas e Lesiones; Fricción; Institucionalización; Prevalencia.

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INTRODUCTION

Skin tears are trauma injuries where shear or friction can cause wounds of partial or total separation of the epidermis from the dermis, or total separation of both from the underlying structures[1]. The largest risk group consists of people who are dependent for Basic Activities of Daily Living, with poor nutrition, debilitated, who have comorbidities, and that require medications that compromise skin integrity[1]. The most likely sites of involvement are the upper members, followed by the lower members, back and buttocks[1].

Statistics show that the prevalence of this type of injury varies from 3.3% to 22.0%, and is mainly associated with advanced age and dependence for basic activities of daily living[2]. In Brazil, data on hospitalized adult cancer patients indicate a prevalence of 3.3%, with 60.0% of the sample over 60 years of age[3].

Due to aging, the skin suffers a loss of thickness in the dermis and a reduction of moisture and elasticity, consequently, older adults are more likely to present this type of injury. Although skin tears do not generate serious potential problems, they are worrying because they can cause pain and become chronic and infected, thus affecting the quality of life of the older adult[2-3].

Considering the longevity of the population and the incidence of chronic noncommunicable diseases and the consequent increase in the prevalence of these injuries, there is a need to develop studies on this type of wound.

This study is justified considering the vulnerability of older adults to the development of skin tears and the increasingly frequent practice of institutionalizing them in long-term care institutions, as well as the lack of knowledge by professionals and caregivers regarding the correct identification of skin tears[2]. The aim was to analyze the prevalence of skin tears and the associated risk factors in older adult residents of a long-term care institution.

METHOD

This cross-sectional analytical study was conducted at a Long-Term Care Institution (LTCI) for older adults, in the city of Teresina-PI, which was under the supervision and management of the state government and linked to the State Department of Social Welfare and Citizenship.

The study population consisted of 55 older adult residents of the LTCI. One older adult who was absent due to hospitalization during the period was excluded, resulting in a sample of 54 older adults who fulfilled the inclusion criteria: being aged 60 years or over, of either sex and of any length of stay.

For the data collection, which took place between August and September 2017, the forms for the investigation of sociodemographic and clinical data prepared by the authors, the Mini Mental State Examination, the Katz Scale and the Skin Tear Audit Research (STAR) - Skin Tear Classification System were used.

An interview, physical examination of the skin and, when necessary, a search in the medical records for information about clinical conditions were performed. To investigate the skin conditions and the presence of skin tears, a physical examination of the skin was performed in the cephalocaudal direction.

The older adults initially responded to the Mini Mental State Examination, with the application of cut-off points according to schooling[4], to assess the cognitive conditions in order to respond to the interview and, in cases of cognitive impairment, the interview was performed with the care provider responsible.

In the interviews, a form was used for the investigation of the sociodemographic (age, sex, education, marital status and retirement) and clinical data (diagnosis, date of admission, length of stay, weight, height, body mass index, nutritional status, comorbidities, chemotherapy, smoking, continuous use of medications, presence of drains, catheters and adhesive dressings, current skin conditions, previous history of skin tear and falls, mobility, gait and visual acuity).

Following this, the Mini Mental State Examination and Katz Scale were applied, with the results recorded on the form. Finally, it was checked whether the older adult presented any skin tear and, if present, information about the injury (number, location, infection, time of injury, flap conditions and classification) was recorded.

The Katz Scale was applied to assess the functional independence in the performance of Basic Activities of Daily Living. The injuries were classified according to the version of the STAR system translated and adapted for Brazil into categories 1a, 1b, 2a, 2b and 3[1].

To assess the nutritional status and calculate body mass index, weight and height were obtained using a mechanical platform scale. In cases of limitations to stand or move, an indirect estimate of weight and height was performed. Weight was calculated using the formulas[5]: Body Weight (kg) = (1.27 x CC) + (0.87 x KH) + (0.98 x AC) + (0.4 x SSSF) - 62.35 for women and Body Weight (kg) = (0.98 x CC) + (1.16 x KH) + (1.73 x AC) + (0.37 x SSSF) - 81.69 for men, where CC is the calf circumference; KH knee height; AC arm circumference; and SSSF the subscapular skinfold.

To calculate the height, the following formulas were used according to race and gender[6]: Height = 70.25 + (1.87 x KH) - (0.06 x age) (white women); Height = 68.1 + (1.86 x KH) - (0.06 x age) (black women); Height = 71.85 + (1.88 x KH) (white men); Height = 73.42 + (1.79 x KH) (black men).

The body mass index (BMI) was calculated using the formula BMI = Weight/Height^2, classified according to the World Health Organization recommendations: <18.4 underweight, 18.5-24.9 normal weight, 25.0-30.0 overweight and >30.0 obese[7].

Exploratory and inferential statistical analysis was performed using the SPSS version 20.0 software. The characterization of the sample regarding sociodemographic and clinical variables was performed using descriptive statistics, such as measures of central tendency and dispersion.

The Kolmogorov-Smirnov test was applied to the continuous numerical variables to verify the assumption of normality, with a normal distribution pattern found. To observe the difference in means between the groups of older adults with and without skin tears, student's t-test was applied. To verify the association between the skin tear outcome and the independent variables, the adjusted Odds Ratio was used, with the respective confidence intervals (95%CI). Statistical significance was set at $p < 0.05$.

The study was performed according to the formal requirements contained in Resolution No. 466/12 of the National Health Council and was approved by the Research Ethics Committee of the Federal University of Piauí, under authorization No. 2.085.462.

RESULTS

Of the 54 older adults that participated in the study, the mean age was 77.4 years (SD 7.92), with the majority aged between 60 and 79 years (57.4%), 34 (63.0%) being male and 36 (66.7%) single. Regarding education, 42 (77.8%) were illiterate, with mean years of schooling of 5.3 years (SD 3.25), 11 (22.2%) not retired, and mean length of institutionalization of 7.72 years (SD 7.20).

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Regarding the clinical characteristics, 30 (55.6%) older adults were classified as having normal nutritional status, followed by 16 (29.6%) overweight, 48 (88.9%) presented one or more comorbidities, 18 (33.3%) were hypertensive and diabetic and 5 (9.3%) had peripheral vascular disease.

Accordingly, 48 (88.9%) continuously used medications. A mean of 4.5 medications (SD 2.0) were used and among those that used them, 10 (18.5%) used anticoagulants and 2 (3.7%) corticosteroids. Of the respondents, 16 (29.6%) were smokers, 32 (59.3%) had a history of falls and 47 (87.0%) had no history of skin tears. The majority, 53 (98.1%), did not use drains/catheters or adhesive dressings.

Regarding the skin conditions, it was found that 49 (90.7%) did not present bruising on the extremities and 53 (98.1%) did not present senile purpura. However, 42 (77.8%) presented dry and scaly skin and 25 (46.3%) edema of the extremities.

In relation to the clinical conditions, although the majority, 41 (75.9%), had preserved mobility, 13 (24.1%) were bedridden, 28 (51.9%) had some difficulty in walking, 20 (37.0%) had impaired vision and 48 (88.9%) cognitive impairment, consequently 30 (55.6%) were dependent to perform activities of daily living.

Among the 54 older adults interviewed, 11 presented skin tears.

Considering the characteristics of the injuries presented, it was observed that 8 (53.3%) were located in the lower limbs, with a mean length of injury time of 3.8 days (SD 1.40), none with infection and 2 (13.3%) with viable flaps. Regarding the classification, 7 (46.7%) were category 3, 3 (20.0%) category 1b, 3 (20.0%) category 2b and 2 (13.3%) category 1a.

Table 1 shows that the highest prevalence coefficients of skin tear, 8 (72.7%), were among the male older adults, 10 (90.9%) of whom were over 80 years of age, 6 (54.5%) non-white, 7 (63.6%) illiterate, 10 (90.9%) presented comorbidities, 6 (54.5%) were smokers and 10 (90.9%) were continuously using medication. Although age (OR = 2.647), race (OR = 1.257), education (OR = 2.500), comorbidities (OR = 1.316) and continuous use of medication (OR = 1.316) behaved as factors that increased the chances of skin tear, they did not present statistical significance.

Table 1 - Association of sociodemographic and clinical variables with the prevalence of skin tears in older adults. Teresina, PI, Brazil, 2017 (continues)

Variables	No	Yes	OR	95%CI
	n (%)	n (%)		
Sex			0.574	0.133-2.472
Male	26(60.4)	8(72.7)		
Female	17(39.6)	3(27.3)		
Age group (years)			2.647	0.298-23.487
60 - 79	30(69.8)	1(9.1)		
> 80	13(30.2)	10(90.9)		
Skin color			1.257	0.333-4.748
White	22(51.1)	5(45.5)		
Non-white	21(48.9)	6(54.5)		
Education			2.500	0.587-10.645

Illiterate	35(81.4)	7(63.6)		
> 1 year of schooling	8(18.6)	4(36.4)		
Comorbidities			1.316	0.138-12.574
No	5(11.6)	1(9.1)		
Yes	38(88.4)	10(90.9)		
Smoker			0.643	0.168-2.461
No	15(34.9)	5(45.5)		
Yes	28(65.1)	6(54.5)		
Continuous use of medication			1.316	0.138-12.574
No	5(11.6)	1(9.1)		
Yes	38(88.4)	10(90.9)		
Anticoagulant Use			0.378	0.043-3.352
No	34(79.1)	10(90.9)		
Yes	9(20.9)	1(9.0)		
Corticosteroid use			-	-
No	41(95.3)	11(100)		
Yes	2(4.7)	0(0)		
Total	43(100)	11(100)		

Legend: OR = adjusted odds ratio; 95%CI = 95% confidence interval.

There was no significant difference in the mean length of institutionalization (p=.840), age (p=.898), education (p=.154), body mass index (p=.459), Mini Mental State Examination (p=.570) and Katz (p=0.493) of the older adults with and without skin tears (Table 2).

Table 2 - Comparison of means of the sociodemographic and clinical variables between older adults with and without skin tears. Teresina, PI, Brazil, 2017 (continues)

Skin tear	N	Variables	SD	p-value*
Length of Institutionalization (years)				
No	43	7.78	7.19	.840
Yes	11	7.48	7.39	
Age				
No	43	77.27	7.81	.898
Yes	11	78.09	8.71	
Schooling (years)				
No	43	5.87	3.94	.154
Yes	11	4.25	0.50	
BMI				
No	43	23.93	4.48	.459

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Yes	11	24.09	4.52	
MMSE				
No	43	7.53	6.12	.570
Yes	11	7.90	7.72	
KATZ				
No	43	1.46	1.20	.493
Yes	11	2.72	2.28	

Legend: x̄ = mean; SD = standard deviation; The p value was obtained through Student's t test.<0} Statistical significance was set at p ≤0.05.

DISCUSSION

In the present study, the most prevalent age group was from 60 to 79 years, highlighting, according to estimates from the last census, the increase in life expectancy of the Brazilian population with a growing number of older adults aged over 80 years, considering that the mortality of "young older adults" is progressively decreasing[8].

According to the United Nations (UN) projections on the aging of the Brazilian population, in 1950 the number of Brazilian older adults aged 80 years or over was 153,000, by 2020 this will reach 4.2 million and should reach 28.2 million by 2100[9]. In addition, there is evidence that the risk of institutionalization is 9.5 times higher in older adults over 80 years of age[10].

Although other parts of the population also present skin tears, older adults are the most affected, making the age factor relevant. In addition, the older a person is, the greater their exposure to risk factors that are related to aging[11-12].

The male predominance was also observed in other studies with institutionalized older adults[13-14]. One study identified that people living alone had a higher chance of institutionalization, with men having a 70% chance and women 30%[15]. Associated with this fact, there is a higher frequency of the single marital status, which motivates men to age without family and seek institutionalization due to the need for care[16]. This option to remain single, with no spouse, whether due to widowhood or separation/divorce, increases the risk of institutionalization[17].

Regarding comorbidities, a high percentage of hypertensive and diabetic patients were observed, similar to the findings of another study[18]. The effects of hypertension lead to oxygen blockage, leakage of macromolecules into tissues and blockage of capillaries by leukocytes, in addition to diabetes this reduces the action of inflammatory cells, which results in less effective combat against bacteria and less collagen deposition. All these factors interfere with tissue repair[19].

The older adults with chronic diseases used more than one medication continuously. Steroids, antibacterials, antihypertensives, analgesics, tricyclic antidepressants, antihistamines, antineoplastics, antipsychotics, diuretics and hypoglycemics may cause skin or inflammatory reactions and contribute to the development of skin tears[20].

The cognitive assessment, using the Mini Mental State Examination, found a high percentage of the older adults with impairments, which may be an important factor for institutionalization. This could also be a reason that older adults lose their independence and autonomy, with physical involution and decreased interaction with other people due to their chronic health problems and functional limitations[14].

Consequently, it was identified that the majority of the older adults were dependent for performing activities of daily living, which is related to the higher risk of the older adults presenting skin tears due to the risk of skin trauma during transfer and locomotion[2]. In addition, institutionalized older adults with functional disabilities have a high probability of falls[21], with the majority of the participants of the present study presenting a history of falls, which also increases the risk for skin tears.

Regarding the prevalence of skin tears, this is the first local study on the prevalence of these injuries in institutionalized older adults and, due to the fact that there are still few publication, in the national and international scenarios, on the epidemiology of these injuries in this population[2], it is difficult to make comparisons. However, it can be seen that the prevalence of 20.4% found in this study was high and, when comparing this to other studies[3,11,22], quite different coefficients were found. This was probably justified by the different scenarios and populations.

A study conducted in a long-term care unit in Japan found a prevalence of 3.9%[12] and a study carried out in a long-term care institution in Canada found a rate that was close to that of the present study (22.0%)[22]. In a recent systematic review of the literature on the epidemiology of skin tears, in the hospital setting, the coefficients ranged from 3.3% to 22.0%, the lowest being in Brazil and the highest in Canada. In the home setting, the greatest similarity with the context of the long-term institution, the prevalence of skin tear ranged from 5.5% to 19.5%[2].

The main anatomical region of the skin tears was the area of the lower limbs, in agreement with a study conducted in a non-hospital environment, where the prevalent location was also the region of the legs (46.0%)[22], the most common location when the older adult is dependent[20].

In relation to the classification, there was a predominance of category 3 injuries, a situation also highlighted in another Brazilian study[3], however, unlike studies conducted in Japan[11], which found more 1b (68.8%), and Canada[22], with more 1a (32.0%) classifications. This finding should be emphasized, due to the importance of prevention, since the skinflaps of the lesions were not viable, which interferes with the topical treatment to minimize further damage to the skin.

Concerning the factors associated with the development of skin tears, the debilitated and dependent patients with impaired mobility and nutrition, fragile skin, using corticosteroids, anti-inflammatory and antihypertensive drugs are highlighted[2,20,22].

Although no variable in the present study had a statistical association with the occurrence of skin tears, some data should be highlighted when corroborating the literature on the subject. Almost all the cases of skin tear were in older adults over 80 years of age with comorbidities. Old age is considered a risk factor because of the physiological changes inherent in aging that expose the older adults to skin tears more than any other risk group, due to skin fragility and trauma susceptibility[22].

The presence of comorbidities is also a risk factor, as they may increase skin fragility, as well as impair physical mobility and increase dependence for activities of daily living, which considerably increases the risk for trauma[1-2,11].

The limitations of this study are mainly related to the sample, as it was performed in only one long-term institution, which also made it difficult to perform a more robust statistical analysis. Despite this limitation, the study contributes to increase the knowledge of the epidemiology of skin tears in institutionalized older adults.

CONCLUSION

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There was a high prevalence of skin tear, although no risk factors were associated with this occurrence. The results of this study help to understand the epidemiology of skin tears in older adults in long-term care facilities. However, there is a need to replicate this study in other institutions to investigate the prevalence of this type of injury and, especially, the risk factors for its occurrence in this clientele, which will contribute to the development of preventive measures by nurses.

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