Original Article

Association of socioeconomic and clinical factors and tissue integrity outcome of patients with ulcers

Associação dos fatores socioeconômicos e clínicos e o resultado integridade tissular em pacientes com úlceras

Asociación de los factores socioeconómicos y clínicos y el resultado integridad tissular en pacientes con úlceras

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ABSTRACT

Objective: to analyze the association between socioeconomic and clinical factors and indicators of the tissue integrity outcome in nursing among patients with venous ulcers.

Methods: a cross-sectional study at a university hospital in Natal, RN, Brazil, from February to June 2012, with 50 individuals. To analyze the variables, we used the Spearman correlation test and the Mann-Whitney and Kruskal-Wallis tests at a level of 5%.

Results: there was a correlation of low intensity between age and the indicators hydration and skin peeling, and family income and necrosis. There was also an association between gender and the indicators temperature, amount of body hair and exudation.

Conclusion: the associated variables provide important information for the treatment of patients with venous ulcers, and can help reduce ulcer time and the consequent discomfort, limitations and costs. This information should be considered when providing care for patients with a nursing diagnosis of impaired skin integrity and/or impaired tissue integrity.

Keywords: Nursing. Varicose ulcer. Health profile. Outcome assessment (Healthcare).

RESUMO

Objetivo: analisar a associação entre os fatores socioeconômicos e clínicos e os indicadores do resultado de enfermagem Integridade Tissular em pacientes com úlceras venosas.

Métodos: estudo transversal realizado em um hospital universitário de Natal/RN/Brasil entre os meses fevereiro a junho de 2012, com 50 indivíduos. Para a análise das variáveis, utilizou-se o teste de Correlação de Spearman, Mann-Whitney e Kruskal-Wallis, adotando-se um nível de 5%.

Resultados: houve correlação, de intensidade fraca, entre idade e os indicadores hidratação e descamação cutânea; renda familiar e necrose, bem como associação entre sexo e indicadores temperatura, quantidade de pelos e exsudato.

Conclusão: as variáveis que apresentaram associação geram informações relevantes para o tratamento dos pacientes com úlceras venosas, contribuindo na redução do tempo úlcera e, consequentemente, do incômodo, das restrições e dos gastos. Assim, devem ser considerados durante a assistência a um paciente com os diagnósticos de enfermagem Integridade da pele prejudicada e/ou Integridade Tissular prejudicada.

Palavras-chave: Enfermagem. Úlcera varicosa. Perfil de saúde. Avaliação de resultados (Cuidados de Saúde).

RESUMEN

Objetivo: analizar la asociación entre los factores socioeconómicos y clínicos y los índices del resultado Integridad del Tejidos en pacientes con úlceras venosas.

Métodos: estudio transversal en un hospital universitario de Natal / RN / Brasil, de febrero a junio de 2012, con 50 individuos. Para el análisis de las variables se utilizó la prueba de correlación de Spearman, Mann-Whitney y Kruskal-Wallis, adoptando un nivel de 5%.

Resultados: se observó una correlación de baja intensidad, entre la edad y los índices de la hidratación y la descamación de la piel; ingresos familiares y necrosis, así como la asociación entre el sexo y la temperatura, la cantidad de pelo y exudado.

Conclusión: las variables que se asociaron generan información relevante para el tratamiento de pacientes con úlceras venosas, que contribuyen a reducir el tiempo de la úlcera, y, en consecuencia, las molestias, restricciones y gastos. Por lo tanto, deben ser considerados durante el cuidado de un paciente con el diagnóstico de enfermería Deterioro de la integridad de la piel y / o la integridad del tejido deteriorado.

Palabras clave: Enfermería. Úlcera varicosa. Perfil de salud. Evaluación de resultado (Atención de salud).

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INTRODUCTION

Leg ulcers affect the extremities of the lower limbs and the cause is generally related to the arterial or venous vascular system. Common forms of ulcer include venous ulcers (VU), which represent 70 to 90% of all lower limb ulcers and are considered the most serious complication of chronic venous insufficiency (CVI)[1-2].

CVI is related to prolonged venous hypertension caused by increased venous pressure and diminished blood return, and may be the result of primary varicose veins, the sequela of deep vein thrombosis, venous disorders or other causes that interfere with the return of venous blood[2].

Venous ulcers are a public health problem, and the prevalence increases with the growing elderly population and age, since it affects more than 4% of people over 65[3]. With regard to sex, studies indicate the predominance of VU among women, who also show a high number of relapses and a high dependency on health services[1, 3-4].

In terms of clinical aspects, VU are characterized by slow progression, infiltrated edges, hot extremities, edema, varicose veins, sharp or continuous pain, the presence of secondary infection and skin alterations such as stasis dermatitis, sclerosis and hyperpigmentation. These ulcers are usually located in the perimalleolar medial and distal third of the leg[5].

Patients with venous ulcers inevitably present a nursing diagnosis related to skin, such as the impaired skin integrity diagnosis, which is defined as altered epidermis and/or dermis justified by the presence of a solution of continuity in these patients[6].

In addition, the impaired tissue integrity diagnosis that is defined as damage to the mucous membrane, cornea, tegumentary tissue, muscle fascia, muscle, bone, cartilage, articular capsule and/or ligament is also an evident diagnosis among patients with venous ulcers[6].

In order to evaluate the diagnoses mentioned above, and considering that each nursing diagnosis must include a nursing outcome based on the Nursing Outcomes Classification (NOC), the study highlights the nursing outcome "Tissue Integrity: skin and mucous membranes" as being the best suited to these diagnoses[7].

This result is defined as structural integrity and normal physiological function of the skin and mucous membranes, with the clinical indicators temperature, sensitivity, elasticity, hydration, sweating, texture, thickness, tissue perfusion, growth of hair on the skin, skin integrity, abnormal pigmentation, mucous lesions, scar tissue, skin cancers, flaky skin, skin peeling, redness, whitening, necrosis and hardening[7].

It is therefore important to obtain further knowledge of patients with venous ulcer and their peculiarities in order to establish possible associations with the studied nursing outcome. The identification of socioeconomic and clinical data allows health professionals to identify the profile of patients affected by this type of condition, and the association of these data with tissue integrity data supports the planning and organization of more effective goals and the provision of nursing care that observes the reality and needs of these patients.

The identification of studies that associate tissue integrity and the socioeconomic and clinical data of patients with venous ulcers is scarce. A study conducted in northeastern Brazil can be considered relevant to this subject, since it characterizes the health status referent to tissue integrity in patients with venous ulcers and makes the association between socioeconomic data and the outcome itself, without specifying the relationship with the individual indicators. This study found a statistically significant association between the nursing outcome and age, where the older the patient, the lower the score of the indicator[4].

In light of the representativeness of this subject and its implications and considering the specific characteristics of patients with venous ulcer, this study was based on the following guiding question: is there an association between socioeconomic and clinical factors and the indicators of the nursing outcome tissue integrity in patients with venous ulcers? The aim of this paper is to analyze the association between socioeconomic and clinical factors and indicators of the nursing outcome tissue integrity in patients with venous ulcers.

METHOD

Cross-sectional study conducted in the outpatient surgery clinic of a university hospital in northeastern Brazil, with 50 individuals recruited through consecutive sampling calculated using the formula $n = (z*s/e)^2$, where "z" is the level of confidence, "s" is the standard deviation of the NOC average and "e" is the absolute sample error in relation to the NOC average. Additional considerations included z = 95% (1.96), average NOC normality of "3" and an error of 0.83.

The criteria for inclusion were patients with venous ulcer based on clinical signs and an Ankle Brachial Index value above 0.8, which represents venous impairment[8]; patients referred to the surgical clinic of the hospital; and patients over the age of 18. The criteria for exclusion were patients with venous ulcer and psychiatric or mental disorders, characterized by conditions of psychological, mental

or cognitive abnormality, suffering or impairment; and patients with an oncological lesion or of mixed etiology.

It should be noted that the referred consultation that was adopted as a criterion for inclusion is based on the dynamics of outpatient care of the studied hospital by means of the referral system of the Unified Health System provided by the primary care units for consultations with the angiologist/vascular surgeon. Individuals with lesions are referred to the dressing rooms to remove the coverage and clean the lesion so the angiologist can look at the lesion before the patient enters the consultation room. The nursing stuff dresses the lesion under the nurse's supervision.

The data collection instrument was an interview form and a physical examination based on the script created for a study in northeastern Brazil[4]. The instrument of operational definitions for indicators of the nursing outcome tissue integrity constructed and validated by the same author[4] was also applied to the patients with VU.

The variables for socioeconomic characterization were sex (female, male), occupation, marital status (with and without companion), age (in years), years of schooling, family income and per capita income.

The variables of the clinical data for patients with VU were dorsal pedal and posterior tibial pulse (regular and strong; regular and weak; irregular and strong; irregular and weak; measurement impaired, measured using pulse palpitation), foul smell (yes or no, according to the interviewer when viewing the lesion) and ambulation (no change; with help; does not walk, according to direct observation and patient response), ulcer time (in years, according to patient/companion response), systolic and diastolic pressure (in mmHg, measured with a simple stethoscope brand Premium and aneroid sphygmomanometer brand Premium with latex hose and bulb and nylon cuff with Velcro closure. The device was duly calibrated), ankle systolic pressure (in mmHg, measured with a sphygmomanometer and Doppler-type stethoscope), Ankle/Brachial Index (ratio between the systolic arterial pressure and the ankle systolic pressure), the lesion area (in cm^2, calculated by multiplying the greatest width by the greatest length of the lesion using a paper ruler).

Finally, we used the variables of the tissue integrity outcome: skin and mucous membranes of the NOC, with five point values of the Likert scale with regard to level of impairment: 1 - Serious; 2 - Substantial/very; 3 - Moderate; 4 - Fair; 5 - No/None. The indicators of the outcomes in question were skin temperature, sensitivity, elasticity, hydration, texture, thickness, tissue perfusion, amount of hair, abnormal pigmentation, skin lesions, scar tissue, skin flaking/peeling, erythema, necrosis, induration, itching, pain and exudation. The indicators used in this study were described and detailed in the study mentioned earlier[4], in which some NOC indicators were eliminated and new indicators were proposed.

Two propaedeutic methods - inspection and palpation - were used to measure the indicators of the tissue integrity outcome: skin and mucous membranes. However, two of the indicators were measured using specific instruments. Temperature was measured with an MT-305 Minipa infrared thermometer calibrated with the emissivity of 0.98, which is specific for human skin, and sensitivity was measured using Semmes-Weinstein monofilament examination or a Sorri® monofilament aesthesiometer. For the ABI, ankle systolic pressure was measured with a sphygmomanometer and Doppler-type stethoscope.

Data were collected by a Master´s level graduate student responsible for the study from February to June 2012. The data were stored in an Excel spreadsheet, tabulated using IBM SPSS version 19.0 for Windows and analyzed by means of descriptive statistics and nonparametric tests. The Shapiro-Wilk test was conducted to assess the distribution of quantitative data according to normality.

The Spearman correlation coefficient was used to check the correlation between the variables. Statistical associations were analyzed using the Mann-Whitney test for both groups, and the Kruskal-Wallis test was used to compare three or more groups. A level of 5% ($p< 0.05$) was established to determine the statistical significance of the specified tests. The values recommended by the British Medical Journal were used to classify the power of the correlations among the variables. These values are: 0.00 - 0.19: absent or very weak; 0.20 - 0.39: weak; 0.40 - 0.59: moderate; 0.60 - 0.79: strong; 0.80 - 1.00: very strong[9]. The data were discussed using literature published on the subject.

The study observed Resolution 466/2012 of the Conselho Nacional de Saúde[10], and the project was approved by Comitê de Ética em Pesquisa of the Hospital Universitário Onofre Lopes (Universidade Federal do Rio Grande do Norte), under protocol 608/11 and Certificado de Apresentação para Apreciação Ética 0038.0.294.000-11. The patients agreed to participate in the study by signing an informed consent statement.

RESULTS

The results of the study are presented below in tables of socioeconomic and clinical characterization and the association of these data with the indicators of the NOC tissue integrity outcome.

Table 1 shows the results based on descriptive data of the socioeconomic characterization of the investigated users.

Table 1 – Social Characterization of patients with venous ulcers. Natal, RN, Brazil, 2013

Variables	N	%
Sex		
Female	33	66
Male	17	34
Total	**50**	**100**
Occupation		
Retired	25	50
Homemaker	08	16
Temporary Benefit	03	06
Unemployed	02	04
Self-Employed	01	02
Other	11	22
Total	**50**	**100**
Marital status		
Married/consensual union	30	60
Widowed	13	26
Single	04	08
Separated	03	06
Total	**50**	**100**

Source: Research data, 2013.

Table 2 – Clinical characterization of patients in terms of pulse, ambulation and odor from the venous ulcer. Natal, RN, Brazil, 2013

Variables	n	%
Pedal pulse		
Regular and strong	32	64
Measurement impaired	14	28
Regular and weak	04	08
Total	50	100
Posterior Tibial Pulse		
Regular and strong	26	52
Measurement impaired	19	38
Regular and weak	05	10
Total	**50**	**100**
Foul odor coming from the ulcer		
Present	04	08
Absent	46	92
Total	**50**	**100**
Ambulation		
No change	42	84
With help	08	16
Total	**50**	**100**

Source: Research data, 2013.

Most of the patients were women, retirees and living with a companion. To check the normality of the numeric variables, we used the Shapiro-Wilk test represented by the p value. The average age was 59.72 years (± 12.71) with a minimum of 28 and a maximum of 88 years (p = 0.533). The median number of schooling year was five, ranging from zero to 12 years and p = 0.030, which falls into the category of unfinished primary school. Average family income was 1244.00, or the equivalent of two minimum wages, with a minimum income of BRL622.00 and maximum income of BRL3732,00 (p = 0.000). Average per capita income was 311.00, or half a minimum wage, ranging from BRL 69.11 to BRL1244.00 (p = 0.000). The minimum wage of BRL622.00 was considered at the time of the study[11].

Table 2 shows the descriptive clinical data of the patients with venous ulcer.

With regard to clinical aspects, there was a prevalence of regular and strong pulse for pedal and posterior tibial pulses. Measurement impaired is the impossibility of checking the pulse due to the location of the lesion, which is sometimes in the same location where the pulse is palpated. A foul odor coming from the ulcer was identified by a minority of patients. However, ambulation was unchanged in most of the sample.

To check the normality of the numeric variables, we used the Shapiro-Wilk test represented by the p value. The median time of venous ulcer was 120 months, which is the equivalent of 10 years. The minimum time was 15 days and the maximum time was 37 years (p = 0.001). The median for systolic blood pressure (SBP) was 120 mmHg (p = 0.000) with a minimum of 100 mmHg and a maximum of 170 mmHg; for diastolic blood pressure (DBP) the median was 80 mmHg (p = 0.001) with minimum of 60 mmHg and a maximum of 110 mmHg; for ankle systolic pressure (ASP) the median was 120 mmHg (p = 0.000) with minimum value of 100 mmHg and a maximum of 180 mmHg; the Ankle-Brachial Index (ABI) presented a median of 1 (p = 0.001), with a minimum and maximum of 0.87 and 1.16,

respectively; and the median for the lesion was 19.5 cm^2 (p = 0.000), ranging from 0.5 cm^2 to 450 cm^2.

Table 3 presents the correlations identified among the socioeconomic data and indicators of the nursing outcome tissue integrity: skin and mucous membranes.

There was a statistically significant correlation of weak intensity between age and the indicators of the tissue integrity outcome: hydration (p = 0.032; r_s = -0.304) and skin flaking/peeling (p = 0.026; r_s = -0.316); between years of schooling and the indicator skin flaking/peeling (r_s = 0.300; p = 0.034), and between family income and the indicator necrosis (p = 0.012; r_s = -0.353). The Mann-Whitney U test revealed a difference between the sexes for the indicators temperature (p = 0.046), amount of hair (p = 0.011) and exudation (p = 0.016).

Table 4 shows the correlations between the clinical aspects and the indicators of the nursing outcome tissue integrity: skin and mucous membranes.

With regard to the correlation between the clinical aspects and the indicators of the studied outcome, only the ABI variable presented a statistically significant correlation of low intensity with the indicator tissue perfusion (p = 0.044; r_s = -0.329).

DISCUSSION

The predominance of females in the study converges with data from other studies [1, 5, 12] where the percentage of women with venous ulcers ranges from to 68.2% to 88.9%. The largest proportion of VU among the female sex is the result of neuroendocrine disorders, changes resulting from pregnancy, puerperium and a higher incidence of varicose veins among women, all of which trigger CVI[5].

In terms of occupation, half of the sample was identified as retired or a pensioner, and four of these individuals were under the age of 60. These individuals, together with

Table 3 – Analysis of correlation and association between socioeconomic aspects and indicators of the nursing outcome tissue integrity: skin and mucous membrane in patients with venous ulcers. Natal, RN, Brazil, 2013

Indicators	Age[1]	Sex[2]	Marital status[3]	Occupation[3]	Years of schooling[1]	Family income[1]	Income per capita[1]
Temperature	0.768	0.046*	0.492	0.446	0.209	0.052	0.286
Sensitivity	0.068	0.759	0.097	0.278	0.053	0.054	0.688
Elasticity	0.092	0.865	0.779	0.180	0.381	0.450	0.625
Hydration	0.032*	0.954	0.111	0.096	0.253	0.158	0.223
Texture	0.082	0.836	0.568	0.177	0.967	0.091	0.210
Thickness	0.050	0.859	0.851	0.386	0.208	0.788	0.248
Tissue perfusion	0.064	0.548	0.377	0.363	0.698	0.589	0.668
Amount of hair	0.122	0.011*	0.464	0.222	0.891	0.669	0.063
Abnormal pigmentation	0.314	0.130	0.873	0.539	0.957	0.572	0.406
Skin lesions	0.540	0.928	0.949	0.581	0.773	0.264	0.362
Scar tissue	0.393	0.275	0.967	0.308	0.951	0.629	0.566
Skin peeling/flaking	0.026*	0.862	0.549	0.066	0.034*	0.514	0.885
Erythema	0.761	0.946	0.484	0.447	0.678	0.996	0.675
Necrosis	0.356	0.681	0.383	0.411	0.155	0.012*	0.415
Induration	0.144	0.082	0.710	0.328	0.113	0.826	0.814
Itching	0.770	0.765	0.780	0.981	0.373	0.676	0.518
Pain	0.648	0.450	0.730	0.566	0.381	0.174	0.344
Exudation	0.489	0.016*	0.751	0.347	0.859	0.267	0.708

Source: Research data, 2013.

1 – p-value of the Spearman correlation test; 2 - p-value of the Mann-Whitney U test; 3 - p-value of the Kruskal-Wallis test. *p value< 0.05.

Table 4 – Analysis of the correlation between clinical aspects and indicators of the nursing outcome tissue integrity: skin and mucous membrane in patients with venous ulcers. Natal, RN, Brazil, 2013

Indicators	*SBP[1]	**DBP[1]	***ASP[1]	****ABI[1]
Temperature	0.834	0.770	0.793	0.703
Sensitivity	0.831	0.859	0.903	0.573
Elasticity	0.376	0.300	0.856	0.817
Hydration	0.570	0.714	0.373	0.278
Texture	0.893	0.766	0.991	0.766
Thickness	0.363	0.367	0.918	0.643
Tissue perfusion	0.604	0.441	0.277	0.044[2]
Amount of hair	0.133	0.295	0.052	0.338
Abnormal pigmentation	0.137	0.305	0.648	0.832
Skin lesions	0.806	0.618	0.945	0.574
Scar tissue	0.397	0.557	0.315	0.175
Skin peeling/flaking	0.184	0.146	0.633	0.917
Erythema	0.534	0.638	0.479	0.862
Necrosis	0.929	0.810	0.536	0.606
Induration	0.176	0.266	0.105	0.176
Itching	0.192	0.410	0.359	0.501
Pain	0.192	0.283	0.469	0.620
Exudation	0.842	0.835	0.318	0.391

Source: Research data, 2013.

*SBP – Systolic Blood Pressure; **DBP -Diastolic Blood Pressure; PST - Ankle Systolic Pressure; ABI - Ankle-Brachial Index; 1 – p-value of the Spearman correlation test; 2 - p value< 0.05.

the unemployed patients (four) and temporary beneficiaries (three), total 11 patients, which represents 22% of the sample and may lead to the assumption that they are unable to work due to their condition.

Venous ulcers may lead to leave from work[12], given the impaired functional capacity, problems with mobility and pain. These issues may interfere with the patients' capacity to work and lead to a series of consequences with social and economic repercussions, such as early retirement, unemployment, dependency on family members and a high number of medical leaves from work[13].

Occupational data and the fact that patients were active or inactive are consistent with data from two other characterization studies, where 70% and 69.1% of patients did not have an occupational activity, respectively[3, 13].

The marital status of patients with VU was highly relevance due to the help and psychosocial support companions can offer these patients and to the support they receive from their companions when conducting daily routines, such as personal hygiene or dressing their wounds[1, 3]. It should be noted that these subjects are included in a so-called social network that basically consists of individuals who discuss issues related to care and treatment and offer emotional support, company and financial help[14].

Most of the study sample was over 60 years of age (54%), as found in other studies where there was a greater prevalence of this type of lesion among the over-60 age group[1, 14-15].

Venous ulcers are most common among this age group because the inflammatory response diminishes as patients get older, which reduces the metabolism of collagen. Other associated factors in this age group are angiogenesis and epithelialization, poor nutrition, vascular insufficiency and systemic diseases, which slow down the healing process[12].

A statistically significant correlation between the variable age and the indicator hydration can be caused by the dry perilesional area and inadequate hydration that is common among elderly people and with some chronic skin

diseases, such as VU[16]. In the referred study, both characteristics were found among the patients, which leads nurses to treat the ulcer and the area surrounding the lesion.

In this study, there was a weak correlation between age and skin flaking/peeling. Interestingly, skin flaking can be physiologically explained by the reduction of dermal elasticity due to the reduced number of fibroblasts, which modifies the collagen and elastin fibers[5] and causes dry and scaly skin.

The low educational level and income identified in this study could be justified by the fact that the reference clinic where the study was conducted is a public health service that provides care for low-income users with low schooling. Schooling and income are jointly found among patients with VU, since these factors are precarious in most studies conducted with this population[1, 4, 12]. These facts may indicate a lifestyle that promotes the appearance of lesions, little or no access to specialized health services or inadequate management on the part of professionals who provide healthcare services to this population[13].

The statistically significant correlation between family income and necrosis is justified because treatment for lesions of venous origin tends to be neglected or less effective among individuals with low income, thus increasing the risk of developing non-viable tissue in the wound bed, as in the case of necrotic tissue, and preventing the healing process from occurring in the ideal time.

In order to contribute to the diagnosis of lesions of venous origin, the presence of a pedal or dorsal pulse and posterior tibial pulse in patients with leg injuries must be verified[5]. Arterial disease should be considered in the absence of distal pulses. If found together with lesions that are characteristics of venous ulcers, the venous alterations should be diagnosed[8].

The pulses mentioned above were found among most of the studied individuals, except in the case of patients where measurement was not possible due to lesions in the pulse palpation site. A normal flow was found in some situations, although the pulse could not be palpated due to specific VU characteristics, such as edema and subcutaneous fibrosis[5].

The foul odor from the VU could be the result of some form of infection, such as bacterial infection by Pseudomonas aeruginosa[5]. In this study, 8% of the individuals had lesions with a foul odor, which is similar to a characterization study[12] that found foul odor in 9% of the sample.

The mobility of patients with venous ulcers may also be impaired and limit their ability to complete household chores[3]. Data related to impaired ambulation or ambulation with the help of others are similar to the data found in another study, which highlights the importance of assessing the level of difficulty of mobility among these patients[17].

Prolonged time of lesion, as found in this study, reveals the complexity of VU treatment and the consequent suffering and loss of the patient's capacity to work. It should also be noted that these lesions often remain open for months or years for several reasons such as preexisting conditions related to age, diabetes, poor circulation, poor nutritional status, immunodeficiency, and local factors such as infection and the presence of necrotic tissue, the presence of cells in low mitotic activity, a decrease of growth factors and low cellular responses[12].

The results regarding VU time agree with research conducted in an outpatient clinic of a public hospital in Rio Grande do Sul[14], in which the time evolution of VU ranged from six months to 25 years.

Blood pressure, defined as the force exerted by the blood in a blood vessel, when high, can trigger the collapse of vascular walls. The increased blood flow can aggravate venous hypertension in the case of insufficiency. In this regard, the average SBP was 123.60 and the average DBP was 81.40. These values are considered normal according to the Sociedade Brasileira de Hipertensão[18].

Most of the studied sample suffered from systemic hypertension (44%). However, the use of hypertension medication by these patients justified the normal blood pressure. A study conducted with similar patients revealed an important association between CVI and hypertension, which emphasizes the importance of controlling or treating CVI and the need of treatment for hypertension[19].

The Ankle/Brachial Index (ABI) was also calculated to clinically characterize the ulcers of the sample. The resulting median value was 1. Normal ABI values vary from 0.91 to 1.3. Values below this range reveal arterial insufficiencies, while values above this range indicate the calcification of the arteries. The median value detected in this study discards the possibility of arterial involvement[8].

Although the ABI presented a negative correlation with the indicator tissue perfusion, the intensity of this correlation was low and lacks clinical support, since there is no arterial alteration for venous ulcers and the magnitudes should be directly proportional.

Although some socioeconomic variables showed no association or a statistically significant correlation, no plausible clinical justification was found for these variables. This was not the case of the correlation between schooling and flaking/peeling skin or the differences between the sexes for the indicators of the studied nursing outcome.

The correlations found between these variables and their repercussions on the health of patients with venous ulcer reveal the importance of considering socioeconomic and clinical aspects when assessing patients with impaired tissue/skin integrity

CONCLUSION

The results of this study, based on a master's dissertation "*Integridade tissular de pacientes com* úlceras *venosas: um estudo baseado na Classificação dos Resultados de Enfermagem*"[20], corroborate the socioeconomic profile of the population affected by venous ulcers within the context of outpatient services in regional public health institutions. Elderly women, low income and low schooling were the predominant characteristics of this population, as found in literature.

In summary, the results revealed a statistically significant correlation, of weak intensity, between age, hydration and skin peeling, and family income and necrosis. The results also revealed an association between sex and the indicators temperature, amount of hair and exudation. The studied clinical factors showed a weak correlation between ABI and tissue perfusion.

Consequently, the identification of socioeconomic and clinical factors of patients with venous ulcer and the studied nursing outcome provide information that can help nurses monitor and treat patients with venous ulcers, reduce the ulcer time and the resulting discomfort, limitations and costs, and improve the quality of life of these individuals and their families.

The fact that this study was conducted with patients with venous ulcer, since the instrument targeted this population, is considered a study limitation. Therefore, further research should include lesions of different origins with specific interventions and results that focus on improving the quality of patients with any type of injury.

REFERENCES

1. Dias TYAF, Costa IKF, Melo MDM, Torres SMSGSO, Maia EMC, Torres GV. Avaliação da qualidade de vida de pacientes com e sem úlcera venosa. Rev Latino-Am Enfermagem [Internet]. 2014 [cited 2015 jan. 31];22(4):576-81. Available at: http://www.scielo.br/pdf/rlae/v22n4/pt_0104-1169-rlae-22-04-00576.pdf
2. Seide AC, Coelho RL, Coelho ML, Belczak CEQ. É a lesão venosa a única responsável pela clínica da insuficiência venosa crônica dos membros inferiores? J Vasc Bras [Internet]. 2014 [cited 2015 fev. 1];13(3):162-7. Available at: http://www.scielo.br/pdf/jvb/v13n3/pt_1677-5449-jvb-13-03-0162.pdf
3. Costa IKF, Nóbrega WG, Torres GV, Lira ALBC, Tourinho FSV, Enders BC. Pessoas com úlceras venosas: estudo do modo psicossocial do Modelo Adaptativo de Roy. Rev Gaúcha Enferm [Internet]. 2011 [cited 2015 jan. 31];32(3):561-8. Available at: http://www.scielo.br/pdf/rgenf/v32n3/18.pdf
4. Santos FAAS, Melo RPM, Lopes MVO. Characterization of health status with regard to tissue integrity and tissue perfusion in patients with venous ulcers according to the nursing outcomes classification. J Vasc Nurs. 2010;28(1):14-9.
5. Silva MC. Insuficiência venosa crônica: diagnóstico e tratamento clínico. In: Maffei FHA, Lastória S, Yoshida WB, Rollo HA, Giannini M, Moura R. Doenças vasculares periféricas. 4. ed. Rio de janeiro: Guanabara Koogan; 2008. p. 1804-14.
6. Herdman TH, Kamitsuru S. NANDA International Nursing Diagnoses: definitions & classification, 2015-2017. Oxford: Wiley Blackwell; 2014.
7. Moorhead S, Johnson M, Maas ML, Swanson E. Classificação dos resultados de enfermagem (NOC). 4. ed. Rio de Janeiro: Elsevier; 2010.
8. Giollo Júnior LT, Martin JFV. Índice tornozelo-braquial no diagnóstico da doença aterosclerótica carotídea. Rev Bras Hipertens [Internet]. 2010 [cited 2015 jan. 20];17(2):117-8, 2010. Available at: http://departamentos.cardiol.br/dha/revista/17-2/13-indice.pdf
9. Swinscow TDV. Correlation and regression. In: Swinscow TDV. Statistics at square one [Internet]. London: BMJ Publishing Group; 1997 [cited 2015 jan. 11]. Chapter 11 Available at: http://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one/11-correlation-and-regression
10. Ministério da Saúde (BR). Conselho Nacional de Saúde. Resolução nº. 466 de 12 de dezembro de 2012. Dispõe sobre diretrizes e normas regulamentadoras de pesquisa envolvendo seres humanos. Diário Oficial da União [da] República Federativa do Brasil. 2013 jun 13;150(112 Seção 1):59-62.
11. Presidência da República (BR). Decreto n.º 7.655, de 23 de dezembro de 2011. Regulamenta a Lei nº 12.382, de 25 de fevereiro de 2011, que dispõe sobre o valor do salário mínimo e a sua política de valorização de longo prazo. Diário Oficial da União [da] República Federativa do Brasil. 2011 dez 26;148(247 Seção 1):5.
12. Benevides JP, Coutinho JFV, Santos MCL, Oliveira MJA, Vasconcelos FF. Avaliação clínica de úlceras de perna em idosos. Rev Rene [Internet]. 2012 [cited 2014 nov. 14]; 13(2):300-8. Available at: http://www.revistarene.ufc.br/revista/index.php/revista/article/view/213/pdf
13. Malaquias SG, Bachion MM, Sant'Ana SMSC, Dallarmi CCB, Lino Junior RS, Ferreira PS. People with vascular ulcers in outpatient nursing care: a study of sociodemographic and clinical variables. Rev Esc Enferm USP [Internet]. 2012 [cited 2015 jan. 20];6(2):302-10. Available at: http://www.scielo.br/pdf/reeusp/v46n2/a06v46n2.pdf
14. Silva, DC, Budó MLD, Schimith MD, Torres GV, Durgante VL, Rizzatti SJS, et al. Influência das redes sociais no itinerário terapêutico de pessoas acometidas por úlcera venosa. Rev Gaúcha Enferm [Internet]. 2014 [cited 2015 jan. 20];35(3):90-96. Available at: http://www.scielo.br/pdf/rgenf/v35n3/pt_1983-1447-rgenf-35-03-00090.pdf
15. Salomé GM. Identificação do índice tornozelo/braço em pacientes com úlcera de perna. Saúde Coletiva [Internet]. 2012 [cited 2015 jan. 22];9(58):118-22. Available at: http://www.redalyc.org/articulo.oa?id=84225063004
16. Porto CC. Exame clínico: bases para a prática médica. 7. ed. Rio de Janeiro: Guanabara Koogan; 2013.
17. Sant'Ana SMSC, Bachion MM, Santos QR, Nunes CAB, Malaquias SGV, Oliveira BGRB. Úlceras venosas: caracterização clínica e tratamento em usuários atendidos em rede ambulatorial. Rev Bras Enferm [Internet]. 2012 [cited 2015 jan. 20];65(4):637-44. Available at: http://www.scielo.br/pdf/reben/v65n4/a13v65n4.pdf

18. Pierin AMG, Guimarães AC, Brandão AP, Amodeo C, Mion Jr. D, Casarini DE, et al. Diretrizes Brasileiras de Hipertensão VI. Rev Hipertens [Internet]. 2010 [cited 2014 dec. 21];13(1):5-66. Available at: http://www.sbh.org.br/pdf/diretrizes_final.pdf
19. Silva FAA, Moreira TMM. Características sociodemográficas e clínicas de clientes com úlcera venosa de perna. Rev Enferm UERJ [Internet]. 2011 [cited 2014 dec. 21];19(3):468-72. Available at: http://www.facenf.uerj.br/v19n3/v19n3a22.pdf
20. Medeiros ABA. Integridade tissular de pacientes com úlceras venosas: um estudo baseado na classificação dos resultados de enfermagem [dissertação]. Natal: Universidade Federal do Rio Grande do Norte; 2013.

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