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RESEARCH

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EVOLUTION OF HEALING ULCERS IN THE LOWER LIMBS OF PATIENTS USING UNNA BOOT ASSOCIATED WITH SHIATSU

Evolução da cicatrização de úlceras nos membros inferiores de pacientes em uso de bota de Unna associado ao uso de shiatsu

Evolución de las úlceras de las extremidades inferiores de uso bota de Unna curación en pacientes asociados con el uso de shiatsu

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ABSTRACT

Objective: to evaluate the evolution of healing ulcers in the lower limbs of patients using Unna boot associated with shiatsu. **Method:** a case study carried out in the Regional Polyclinic in the interior of Minas Gerais, Brazil, with seven individuals with ulcers in the lower limbs. Data collection was performed during treatment associated with alternative/complementary shiatsu therapy. Data were analyzed by descriptive statistics. **Results:** the mean age was 61.5 years, among the underlying pathologies, six had diabetes mellitus, four were hypertensive. In the evaluation of the lower limbs, we observed: initial mean wound area: 73 cm² final mean area 24 cm². Initial PUSH 14.8 and final 8.8. Initial pain 2.7 and final 0.14. **Conclusion:** reduction in wound area, pain intensity, and number of wounds was observed, indicating that conventional treatment associated with complementary alternative therapy may be beneficial.
Descriptors: Hypertension, Diabetes mellitus, Diabetic foot, Pain, Shiatsu.

RESUMO

Objetivo: avaliar a evolução da cicatrização de úlceras nos membros inferiores de pacientes em uso de bota de Unna associada ao shiatsu. **Método:** estudo de caso realizado na Policlínica Regional no interior de Minas Gerais com sete indivíduos portadores de úlceras nos membros inferiores. A coleta de dados foi realizada durante o tratamento associado a terapia alternativa/complementar shiatsu. Os dados foram analisados por estatística descritiva. **Resultados:** a média de idade foi de 61,5 anos, dentre as patologias de base, seis tinham diabetes mellitus, quatro eram hipertensos. Na avaliação dos membros inferiores, observou-se: área média inicial da ferida: 73 cm² área

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média final 24 cm². PUSH inicial 14,8 e final 8,8. Dor inicial 2,7 e final 0,14. Conclusão: percebeu-se redução na área das feridas, na intensidade da dor, e no número de feridas, indicando que o tratamento convencional associado a terapia alternativa complementar pode ser benéfico.
Descritores: Hipertensão arterial, Diabetes mellitus, Pé diabético, Dor, Shiatsu.

RESUMÉN

Objetivo: Evaluar la evolución de la cicatrización de úlceras en los miembros inferiores de pacientes en uso de bota de Unna asociada al shiatsu. **Método:** Estudio de caso realizado en la Policlínica Regional en el interior de Minas Gerais con siete individuos portadores de úlceras en los miembros inferiores. La recolección de datos fue realizada durante el tratamiento asociado a shiatsu. Los datos fueron analizados por estadística descriptiva. **Resultados:** El promedio de edad fue de 61,5 años, entre las patologías de base, seis tenían diabetes mellitus, cuatro eran hipertensos. En la evaluación de los miembros inferiores, se observó: área media inicial de la herida: 73 cm² área media final 24 cm². PUSH inicial 14,8 y final 8,8. Dolor inicial 2,7 y final 0,14. **Conclusión:** Se percibió reducción en el área de las heridas, en la intensidad del dolor, y en el número de heridas, indicando que el tratamiento convencional asociado a terapia alternativa complementaria puede ser benéfico.
Descriptores: Hipertensión, Diabetes mellitus, Pie diabético, Dolor, Shiatsu.

INTRODUCTION

A common complication among patients bearing Diabetes Mellitus (DM) and Systemic Arterial Hypertension (SAH) are the wounds/ulcers in the extremities resulting from the chronicity of these pathologies, which require specific treatment to achieve healing. Such ulcers, which are difficult to heal, significantly interfere with the patient's quality of life and recurrences are a frequent event.[1,2]

Several factors contribute to the occurrence of a wound or ulcer in the lower limbs, one being venous insufficiency. In this condition, venous return is impaired due to inadequate venous valves, which generates venous stasis. Regularly, venous insufficiency occurs in the legs and is associated with edema and, eventually, with venous stasis ulcer (varicose ulcer).[1,2]

Venous ulcers have high rates of recurrence, reaching 51.7%, according to a descriptive study performed in *Goiânia* city with 58 people. In most cases, the area was greater than 24 cm², with the presence of large amounts of exudate and slough, unfavorable conditions for healing.[3]

A descriptive study carried out in the *Goias* State in dressing rooms of municipal health services showed low income and low education, with a predominance of venous ulcers among the vasculogenic, single lesion more frequently, large extension, exudative, impaired healing process and functional limitations caused by poor injury conditions.[3]

It is important emphasizing that, despite the complications discussed previously, peripheral vascular disease contributes to a lower degree of functional capacity among adults and elderly people, in addition to hindering the healing of ulcers.[4]

A cross-sectional study carried out in *Maceió* city with 92 patients bearing diabetes mellitus found 95.6% classified at risk for ulcers, showing the need for more effective intervention measures and improvement in the quality of care provided, with the expansion of interventions and programs that encourage health care practices. promoting health and healthier lifestyles.[5]

Complex ulcers are those that are difficult to heal, requiring more time and more material resources for their resolution, including, in addition to those mentioned above, others associated with different pathologies involving multiple organs and body segments.[6]

Among the therapeutic possibilities for vasculogenic ulcers is the inelastic bandage of Unna paste, made of gauze fabric saturated with zinc oxide in a concentration that varies from 6% to 15%, plus calamine, glycerin, gelatin, and water or a bandage with glycerin, gelatin and zinc oxide. It works as a second set of muscles around the affected limb, leading to a decrease in venous hypertension during ambulation movement.[3]

Another therapeutic possibility is shiatsu, which is an alternative/complementary therapy of Japanese origin and recommended as therapy by the Ministry of Health (Japan). It aims to promote and maintain health and treat specific diseases.[7,8]

Considering the possible applications of shiatsu found in the literature, there is a reduction in nausea related to radiotherapy,[9] postoperative nausea[10] and reduction of pain related to dysmenorrhea.[11]

Bearing in mind the aforementioned, this study was chosen considering the Ordinance No. 971, May 3rd, 2006, in which the Ministry of Health (Brazil) approved the National Policy for Comprehensive and Complementary Practices in the *Sistema Único de Saúde (SUS)* [Brazilian Unified Health System], which provides for the application of alternative/complementary therapies,[12] another motivating factor was the lack of studies regarding the association between the use of the Unna boot and shiatsu therapy. This article meant to assess the healing evolution of ulcers in the lower limbs of patients using Unna boot associated with shiatsu therapy.

METHODS

It is a case study that was carried out at a Regional Polyclinic in the *Minas Gerais* State countryside, counting with the participation of individuals bearing DM and/or SAH and undergoing foot injuries treatment. A data collection instrument used in the service throughout the treatment was applied by previously trained nursing students. The variables studied were as follows: age, gender, underlying disease, wound, pain and working time.

Inclusion criteria were the following: age of 18 years old or older; not having used the Unna boot in the last 30 days before starting treatment. The exclusion criteria were as follows: individuals with signs of mental confusion, unavailability for 180 days of follow-up, osteomyelitis, septic arthritis, with clinical signs of septicemia. Current treatment with Unna boot. The dressings were performed up to twice a week, using the protocol already developed at the research place, using the Pressure Ulcer Scale for Healing (PUSH) to assess the healing evolution.

Data collection took place from August 2015 to December 2016. Patients were evaluated weekly, using the

Pressure Ulcer Scale for Healing (PUSH),[2] which uses three parameters to assess the healing process of ulcers, the first one corresponding to ulcer area that is measured from the longest length (cephalocaudal direction) in relation to the longest width (using a horizontal line that runs from right to left) in centimeters (cm). The ulcer area (in cm^2) is obtained by multiplying these two measurements. The next parameter measures the amount of exudate in the ulcer before the start of treatment, following the classification: absent, small, moderate and large. The third and last parameter classifies the ulcer according to the presence of the following tissues: necrotic tissue that presents a blackish color and is strongly adhered to the ulcer, slough presents yellow or white color that adheres to the bed of the ulcer, granulation tissue has a reddish color, shiny and grainy, epithelial tissue has a pinkish character and grows from the surface or edges of the ulcers. And they can be classified according to these scores: 0 (closed wound), 1 (epithelial tissue), 2 (granulation tissue), 3 (slough) and 4 (necrotic tissue).[13]

The pain was measured with the Visual Numerical Scale, which adopts an index from zero to ten, with the highest index indicating pain of maximum intensity. The average treatment time was eight months. In patients with chronic injuries associated with pathologies such as DM and SAH, the healing time may be longer than in patients without such pathologies. Diabetes Mellitus and Systemic Arterial Hypertension are pathologies that cause pain due to changes in tissue perfusion, especially in the distal extremities. The presence of pain interferes with the healing process, as sleep and rest are compromised, as well as physical activities.[18]

All patients underwent a dressing that was performed once or twice a week, as needed, and the procedure consisted of the following steps: removal of the previous dressing, assessment of the appearance of the ulcer and peri-injury skin, cleaning of the bed of the ulcer with warm 0.9% saline solution and gauze, the skin was cleaned with hypoallergenic neutral soap and warm 0.9% saline solution, after using a fatty essential oil, the shiatsu was carried out with average duration from five to ten minutes. Then, the secondary covering was placed over the ulcer according to the type of tissue present in the wound bed, with the aid of gauzes, the cover was protected, and the special dressing of inelastic gauze or Unna boot was applied, lastly, a bandage was applied as protection. Conclusively, the procedure was progressed in the patient's medical record.

The project was approved by the Ethics Committee of the *Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM)* under the Protocol No. 190/10, according to the Resolution No. 466/2012 from the National Health Council. The data were organized in the Microsoft Windows Excel-2007 Program, processed and analyzed with descriptive statistics.

RESULTS AND DISCUSSION

The sample consisted of seven subjects, four men and three women, with an average age of 61.5 years old. The minimum age was 38 years old and the maximum was 83 years old. Other studies also found an average age above 50 years old.[14,15]

A total of 253 procedures were performed including applications of shiatsu and permanent education for self-care with guidance on food, use of medications to control basic pathologies and physical activity, in addition to 181 applications of Unna boots. Table 1 details the procedures and parameters used as shown below.

Table 1 - Patients assisted during the research. *Diamantina* city, *Minas Gerais* State, 2015.

Number of patients	Total of procedures	Number of Unna boots	INITIAL PUSH	FINAL PUSH	Initial average pain	Final average pain
07	253	181	14,8	8,8	2,7	0,14

The number of ulcers ranged from one to five at the project beginning, and from zero to two by the end. The causes of the wounds were chronic venous insufficiency (4 patients), dehiscence (2 patients), cancer (1 patient). Some patients have more than one pathology distributed as follows: 3 (42.8%) SAH, 3 (42.8%) DM, 3 (42.8%) obesity, 2 (28.6%) poor circulation, 1 (14.3%) dyslipidemia, 1 (14.3%) cancer, 1 (14.3%) cardiovascular surgery. **Table 2** shows the distribution of the underlying pathologies separated by each subject.

Table 2 - Distribution of basic pathologies of the assisted patients. *Diamantina* city, *Minas Gerais* State, 2015.

Research Subjects	SAH	DM	Poor circulation	Dyslipidemia	Obesity	Cancer	Cardiovascular surgery
Subject 1	X	X	X	X			
Subject 2	X		X		X		
Subject 3					X		
Subject 4						X	
Subject 5	X	X			X		X
Subject 6		X					
Subject 7							

Patients bearing ulcers associated with DM and SAH used the Unna boot, among other products,[21] in association with shiatsu and without showing unexpected reactions.

The average initial area of ulcers was 73 cm^2. The average final area of ulcers was 24 cm^2. The initial area of the largest ulcer was 158 cm^2 and the initial area of the smallest ulcer was 2 cm^2.

Ulcers with an area equal to or greater than 20 cm^2 imply more time required to reach the final stage of healing, requiring more material resources, as well as greater delay in meeting the local demand, currently repressed.[16]

The initial pain ranged from zero to ten with an average of 2.7 and the final pain averaged 0.14, in other words, the average was of low intensity. A study carried out in *Natal* city, reported less pain intensity and fewer repercussions on the daily activities of patients who used compression therapy and who followed the guidelines regarding their self-care. In another study, there was a 49.4% prevalence of diabetic foot carriers among those who had been diagnosed for 10 years or more. These clinical conditions contribute to the chronicity of pain.[17,18]

The longest treatment time was 14 months, the average treatment time was 8 months and the shortest time was 3 months. In people with a preserved tissue repair process, the average healing time varies from one to three weeks. A study performed in Goiânia city found that ulcers lasted from 2 to 792 months, with a median of 24 months, but most cases lasted less than 12 months.[16]

All patients received shiatsu therapy during the conventional dressing, reporting good tolerance and with no evidence of further complications. A study carried out with the use of medicinal plants in varicose ulcers reinforced the importance of alternative/complementary therapies being part of the graduation curricula, since this activity is also a nurse's specialty. It is required that more professionals should be qualified to offer this type of care, once there is the guidance of WHO and the policy approved in Brazil.[19]

All patients were instructed about a balanced diet and regular physical activity as strategies to promote healing. Failure to adhere to these guidelines slows down the recovery process. A study reports low adherence to this behavior, with 55.2% having difficulty adhering to the diet and 66.4% of the participants did not practice physical activity.[20] Another study presents compression therapy as one of the main components in the treatment of venous ulcers. With the use of compression therapy there is an improvement in venous return, decreased stasis and edema, thus contributing to a faster healing process.[16] An investigation performed in *Natal* city showed that there was less pain intensity among patients who used compression therapy, received and followed past guidelines.[17]

The study's limitations are related to the low number of participants. For convenience, the sample has limitations in the statistical scope. Furthermore, the presence of comorbidities interferes with the healing process, by slowing it down.

CONCLUSION

The interventions revealed that there was a reduction in wound area, pain intensity, as well as an improvement in local ulcer conditions. The guidelines for self-care were implemented.

It was possible to underline the need to rationalize health actions, together with the adoption of effective strategies towards the management of ulcers challenging to heal. Clinical trial investigations are recommended to compare groups using shiatsu therapy associated with conventional treatment.

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