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ORIGINAL

The treatment with podiatric massage for individuals with plantar fasciitis

El tratamiento con masaje podálico a personas con fascitis plantar

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ABSTRACT

Introduction: in the treatment of plantar fasciitis, foot massage is effective due to its variety of manipulations, gentle movements on the soft tissues of the body, by acting with deep and energetic pressure. These maneuvers are essential and adaptable according to the individual needs of each person with the aim of providing relief and well-being.
Objective: to diagnose the initial state for the execution of foot massage to people with plantar fasciitis at the Dr. Cosme Ordoñez Carceller University Polyclinic.
Method: a descriptive, cross-sectional study was carried out, theoretical methods were applied, the systematization of references related to the subject and empirical methods such as a survey of people with plantar fasciitis, to identify the type of foot massage treatment applied, physical examination and diagnostic tests to determine their level of affectation.
Results: analysis of the results of the instruments used to assess the initial diagnosis and their methodological triangulation allowed us to identify problems and potential opportunities for the application of foot massage in patients with plantar fasciitis attending this clinic.
Conclusions: the problems and potential opportunities identified allowed for the development of the protocol.

Keywords: Plantar Fasciitis; Foot Massage; Podiatry.

RESUMEN

Introducción: en el tratamiento de la fascitis plantar, el masaje podálico es efectivo por su variedad de manipulaciones, movimientos suaves en los tejidos blandos del cuerpo, al actuar con presiones profundas y enérgicas. Estas maniobras son esenciales y adaptables según las necesidades individuales de cada persona con el objetivo de brindar alivio y bienestar.
Objetivo: diagnosticar el estado inicial para la ejecución del masaje podálico a personas con fascitis plantar en el Policlínico Universitario Dr. Cosme Ordoñez Carceller.
Método: se efectuó un estudio, descriptivo, transversal, se aplicaron métodos teóricos la sistematización de referentes relacionados con el tema y métodos empíricos como encuesta a personas con fascitis plantar, para identificar el tipo del tratamiento con masaje podálico que se aplica, la exploración física y pruebas diagnósticas para determinar su nivel de afectación.
Resultados: el análisis de los resultados de los instrumentos que se aplicaron para la valoración del diagnóstico inicial y su triangulación metodológica, permitieron identificar problemas y potencialidades para la aplicación del masaje podálico en personas con fascitis plantar, quien asisten a este policlínico.

Conclusiones: los problemas y potencialidades que se identificaron permitieron la estructuración del protocolo.

Palabras clave: Fascitis Plantar; Masaje Podálico; Podología.

INTRODUCTION

Plantar fasciitis (PF) is inflammation of the plantar fascia. The pain is localized to the inner bottom of the heel and can extend to the toes.[1,2] PF is the most common condition treated by podiatrists and the most common cause of calcaneal pain. It is estimated to affect 2 million Americans annually and results in more than 1 million clinic visits,[3] where treatment with foot massage is used.

Massage as a therapeutic technique is used to relieve pain and improve health. In the treatment of PF, massage is effective in reducing symptoms. This method focuses on applying intense and sustained pressure to the affected area. Frictional movements along the plantar fascia release accumulated tension and reduce muscle contractures in the sole of the foot and surrounding tissues.[4] Musculoskeletal disorders affect the locomotor system and can manifest acutely and transiently, presenting with pain and limited mobility. These conditions can involve muscles, tendons, and bones, negatively impacting people's well-being and ability to participate in society,[5] including PF.

In 2023, the University Polyclinic Dr. Cosme Ordoñez Carceller, with a population of approximately 16,490 inhabitants, saw an increase in the number of people with PF attending Podiatry services. It is estimated that the age of debut (40-60 years) was the highest, with the female sex representing the highest incidence.

This background made it possible to identify the scientific problem of determining the need for rehabilitative treatment with foot massage for people with PF and the research objective: to diagnose the initial state with foot massage for people with PF.

METHOD

A descriptive, cross-sectional study was conducted in podiatry services between March and May 2024.

Inclusion criteria

Selection of people with PF attending podiatry services.

Exclusion criteria

Diseases where foot massage is contraindicated.

Diagnosis of the initial state

Parameterisation of the variable

The information was collected from a population of 15 people (100 %) who attended Podiatry services between September 2023 and diagnosed with PF in the characterization of the sample. The sample included six men (40 %) and nine women (60 %) aged 40-60.

The parameterization procedure for executing the initial diagnostic stage is explained, followed by analyzing the results of each instrument applied to arrive at the inventory of problems and potential.[6,7,8] A single variable, with two dimensions and 23 indicators, is identified: foot massage for people with VF.

Diagnostic dimension: stage in which the symptoms and signs of people with PF are assessed.

Pain threshold level at rest
Pain threshold level on palpation
Level of pain threshold level on the footrest
Level of stiffness (joint mobility)
Level of swelling in the affected area
Level of numbness in legs and feet
Level of difficulty in maintaining correct posture
Level of stiffness in the arch of the foot
Level of difficulty in walking
Level of pain in the sole
Level of pain in the heel
Level of stiffness in the Achilles tendon
Level of stiffness in the gastrocnemius muscles
Level of relief when applying foot massage

Procedural-rehabilitative dimension: stage of rehabilitative treatment where foot massage is applied to people with PF.

Level of execution of strength exercises
Level of execution joint mobility
Level of execution of friction
Level of execution of rubbing
Level of execution of kneading
Level of execution of percussion
Execution level stretching
Level of execution shaking
Level of reflexology execution

Theoretical methods, such as documentary analysis and systematization, and empirical methods, such as surveys of people with PF, observation of treatment with foot massage, physical examination, diagnostic tests of PF (pain and flexibility), the Numerical Verbal Pain Scale (ENVD), and the Simple Verbal Pain Scale (EVSD) were applied.

Statistical methods

Descriptive statistics were used to calculate the percentages in the procedure for the data obtained in the empirical investigations.

Methodological triangulation technique

To process and integrate the results obtained from the inventory of problems and potentialities.

RESULTS

Assessment of the survey of people with VET:

Table 1. Decision

Decision criteria (indicators 1 to 13)	
If more than 60 % of the collected data is found in the sum of the norms YES and FREQUENTLY, it is assessed:	Problem
If the data collected is less than 59 % in the sum of the normotypes YES and FREQUENTLY it is assessed:	Satisfactory
Decision criteria (indicators 14 to 17)	
When the data collected is more than 60 % in the sum of the normotypes YES and FREQUENTLY it is assessed:	Satisfactory
If the data collected is less than 59 % in the sum of the normotypes YES and FREQUENTLY it is assessed:	Problem

Table 2. Assessment of the survey results

No.	Diagnostic Criteria	Yes	Sometimes	No
1	Painful at rest (1.1)	5(33,33 %)	7(46,67 %)	3(20 %)
2	Pain on palpation (1.2)	12(80,00 %)	3(20,00 %)	-
3	Pain on foot rest (1.3)	12(80,00 %)	3(20,00 %)	-
4	Stiffness in the foot (1.4)	10(66,67 %)	3(20,00 %)	2(13,33 %)
5	Swelling in the affected area (1.5)	13(86,67 %)	2(13,33 %)	-
6	Numbness in the legs and feet (1.6)	7(46,67 %)	7(46,67 %)	1(6,67 %)
7	Difficulty in maintaining correct posture (1.7)	-	10(66,67 %)	5(33,33 %)
8	Stiffness in the arch of the foot (1.8)	9(60,00 %)	5(33,33 %)	1(6,67 %)
9	Difficulty walking (1.9)	10(66,67 %)	5(33,33 %)	-
10	Feeling plantar pain (1.10)	8(53,33 %)	7(46,67 %)	-
11	Pain in the heel (1.11)	7(46,67 %)	8(53,33 %)	-
12	Achilles tendon tightness (1.12)	8(53,33 %)	6(40,00 %)	1(6,67 %)
13	Stiffness in the gastrocnemius muscle (1.13)	8(53,33 %)	6(40,00 %)	1(6,67 %)
14	Feels relief with foot massage (1.14)	13(86,67 %)	2(13,33 %)	-

The most affected criteria are those related to pain (1.1,1.2,1.3,1.10,1.11); swelling (1.5) and stiffness (1.4,1.8,1.12,1.13). The criteria related to difficulty in maintaining balance, correct posture and walking (1.7,1.9) are due to stiffness and pain. However, most of the time they feel relief with massage (1.14).

Table 3. Participant observation of podalic massage treatment for people with VF

No.	Criteria according to observation	SO	SAV	NSO
1	Strength exercises are performed (2.1)	5(33,33 %)	-	10(66,67 %)
2	Joint mobility exercises are performed (2.2)	5(33,33 %)	8(66,67 %)	2(13,33 %)
3	Surface Friction is performed (2.3)	5(33,33 %)	10(66,67 %)	-
4	Rubbing is performed (2.4)	5(33,33 %)	10(66,67 %)	-
5	Kneading is performed (2.5)	5(33,33 %)	10(66,67 %)	-
6	Percussion is performed (2.6)	5(33,33 %)	-	10(66,67 %)
7	Stretching is executed (2,7)	5(33,33 %)	2(13,33 %)	8(53,33 %)
8	Shaking is performed (2,8)	5(33,33 %)	2(13,33 %)	8(53,33 %)
9	Reflexology is performed (2,9)	3(20,00 %)	-	12(13,33 %)

Table 4. Participant observation of podalic massage treatment for people with PF with percentage

Decision criteria	Ranking
When the data collected is less than 60 % in the SO normotype it is assessed:	Problem
When the data collected is between 61 % and 69 %. in the SO normotype is assessed:	In transformation
When the maximum expected maximum of the collected data is between 70 % and 100 %. in the SO normotype is assessed:	Satisfactory

Foot reflexology massage is generally applied, but a methodology is needed to improve the application of this treatment. Foot reflexology needs to be applied more to improve the health of people suffering from PF. The most used manipulations are stretching, rubbing, and kneading, and the least used is percussion.

Strength and joint mobility exercises are carried out, to which other exercises should be added.

Table 5. Diagnostic test for PF (pain and flexibility)

Sitting Position	Movement	Valuation	Anatomical region involved	Positive result (bad)	Negative result (good)
Knee extended	Dorsal flexion of the ankle (1,4,1,6,1,10,1,11, 1,12,1,13)	Normal range of motion 10°. positive with restriction and pain	Triceps suralis	15	-
With knee flexed 90°	Dorsal flexion of the ankle (1,4,1,6,1,10,1,11, 1,12,1,13)	Normal range of motion 10°. positive restriction and pain	Complex (gastro-oil)	15	-

Description of the maneuver

In the supine position with the knee flexed or extended. In both cases, the examination is performed on the hindfoot joints in a reduced position to block them and avoid measurement errors.

With the knee extended

Assessment of the dorsal flexion of the ankle and the involvement of the triceps suralis, normal range of motion of dorsal flexion 10°. It is repeated with the knee flexed to 90°; if there is retraction or contracture with flexion of the knee, the limitation of dorsal flexion remains; the retraction would be due to the soleus muscle. In both cases, the test is considered positive as it would present a restriction of the gastro-soleus complex.

Position of the person

Seated with hip flexion at 90º. The ankle is stabilized with the passive hand while, with the active hand, the proximal phalanx of the first toe (hallux) is grasped, performing dorsal flexion. This movement produces flexion of the first metatarsal and an increase in the plantar arch, causing tension in the central band of the plantar fascia. We then palpate along the fascia. The test is positive if it reproduces the pain.

Positive: there is a restriction of movement and pain.
Negative: normal movement and no pain

All the people who had this diagnosis were assessed as positive.

Numerical Verbal Pain Scale (ENVD)

Scores from (0 to 10) your degree of pain, and is divided into four groups: 0 no pain, (1 to 3) mild pain, (4 to 6) moderate pain, (7 to 10) very severe pain.

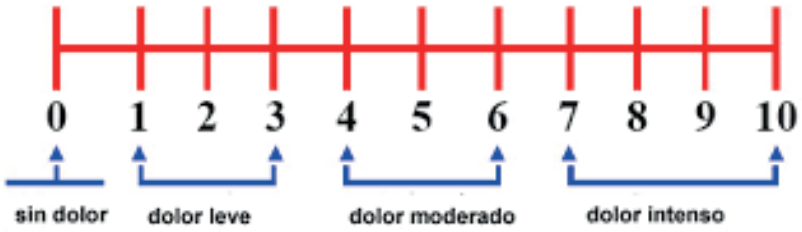

Figure 1. Numerical Verbal Pain Scale (ENVD)

Pain is assessed as

No pain 0, mild pain 2, moderate pain 5, and severe pain 8.

Physical examination of people receiving foot massage treatment with PF

Is done to determine the existence or absence of physical alterations, as well as an analysis of the signs and symptoms of the people produced by the disease.

The physical examination results aimed at people with PF showed a distribution of forefoot 1 (6,67 %), midfoot 4 (26,67 %), rearfoot 8 (53,33 %), and malleolus 2 (13,33 %).

More than 50 % of the physical alterations were identified in the rearfoot region, which coincides with the studied references.

Results of the methodological triangulation

Methodological triangulation makes it possible to group and compare the information received from different sources, techniques, and instruments to identify coincidences and discrepancies in the phenomenon under study.[9]

When the results of the instruments applied are compared, it is observed that the indicators related to pain, as well as those related to joint stiffness and mobility, are valued as problems; therefore, dimension two (diagnosis) is valued as a problem.

The hindfoot region (calcaneus) is the most affected. Few manipulations of podsolic massage, strengthening exercises, and joint mobility are appreciated; people with PF accept the message, so it is necessary to improve this technique. Some indicators of dimension two, rehabilitative procedural dimension 2, are difficult, but they are valued as part of the transformation process.

DISCUSSION

Podiatry treats pathologies that manifest themselves with painful symptomatology, establishing a complementary relationship to reduce foot discomfort, which is essential for identifying functional and structural alterations. This requires a thorough assessment and an individualized examination to optimize the health of individuals.[10]

Musculoskeletal disorders are diseases characterized by a pathology involving injuries to bones, muscles, tendons, nerves, joints, or ligaments. These conditions can be very painful and cause chronic problems with motor functions.[11] Neuromusculoskeletal disorders in the feet encompass a set of alterations of the locomotor apparatus of pathological origin, which include foot problems such as aches and pains.

The types of massage include therapeutic massage, which improves circulation, restores mobility, and reduces ailments; relaxing massages, which provide comfort and regulate tension; and preventive massages, which relax tense areas and prevent injuries.[12]

CONCLUSIONS

Parameterisation of the object of study was carried out to apply the initial diagnosis related to the treatment with foot massage aimed at people with PF. Problems and potentialities were identified and considered for the elaboration of the action protocol.

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