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IMPACT OF REFLEXOLOGY ON MECHANICAL LOW BACK PAIN

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ABSTRACT

Background: Low-back pain (LBP) is one of the highest common and costly musculoskeletal conditions in current society. Seventy to 85% of the populations will exhibits LBP at some time in their lives. There is little known about specific manual therapy techniques used to treat chronic LBP. Reflexology is a treatment that involves using gentle pressure to reflex points located on all of the outsides of the feet and hands. The aim of the study was to investigate the efficacy of reflexology technique in subjects with chronic low back pain (CLBP).

Methods: Twenty patients with nonspecific chronic low back pain were included in the study and were assessed regarding range of motion via goniometer and pain threshold (via modified Oswestery scale and visual analogue scale), the 20 patients were allocated into two groups 10 patients in each group. Group A received reflexology sittings at rate of 3 days per week, and the duration of each sitting was 30 minutes. While group B were control. The study was continued for 3 weeks

Results: According to VAS, the results revealed a non-significant variance between the study group and control group before intervention (p= 0.43). While after intervention, there was a significant decline of pain in the study group compared to that of the control group (p=0.000). Moreover, there was a very highly significant decrease in pain within the study group after treatment (p= 0.005).

Conclusion: The present study indicated that the reflexology technique was effective and safe to be applied for cases of mechanical low back pain. It results in a significant decrease in pain within the study group after treatment.

Keywords: Mechanical low back pain, reflexology, reflex points, gentle pressure, feet and hands, Oswestery scale

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INTRODUCTION

LBP is well defined as pain confined underneath the margin of the last costal margin and above the inferior gluteal line, with or without lower limb pain, and it is one of the most common causes of frailty.[1] It has an incidence of 60-85% throughout an individual's lifetime and the majority of cases (90%) are mechanical and take place in all age groups.[2,3]

There are several therapies for LBP, including medicines (muscle relaxants, nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroids, paracetamol, opioids, and anti-convulsants), physical means (exercises, massage, short wave, ultrasound, and laser). However, the efficacy of the therapeutic interferences is not fully proven.[4,5,6,7] A recent treatment technique such as reflexology and acupuncture has been recently proved.

In reflexology, it is supposed that the certain body surface areas make visible the functional state of target organs and hence transfer the specific physical signatures. The external recordable surface features observed either in single or in combination at the reflexology areas (RAs),including tenderness [8] ,skin color changes(reddish brown, brown/dark brown, black), skin texture (scaling, cracking, recurring corns, puffiness, swelling, or depression[8], a rise in the localized temperature[9], a change in electrical impedance, and the presence of tiny granules.[10] The techniques for evaluating these RA changes are subjective, and so has certain limitations and thereby may deceive the reflexology practitioners when making conclusions regarding interpretations.[6,9,11]

Aim of the study: This study was conducted to explore the noninvasive characterization and effectiveness of reflexology in patients suffering from low back pain.

Materials and Methods

Subjects

Subjects with chronic mechanical low back pain were selected randomly from general population. Patient's age ranged from 20-40. Patients should be free from any other medical condition such as metabolic and neural problems. Sample size of 10 female subjects for each group. All subjects with mechanical low back pain fulfilled with following inclusion criteria :(1) having chronic lumbosacral pain. (2) Having limited range of motion of lumbosacral region. (3) Free from any medical condition.

Materials

Hydraulic chair, electrical hot packs, professional foot treating massage oil, towels, towel heater, alcohol spray and stool chair. Range of motion testing was performed by Goniometry, Lumbar extension and rotation

Visual analogue scale (VAS): measure a typical or outlook that is believed to range through a range of values and difficultly be directly evaluated. Actually a VAS is usually a horizontal line, 10 cm in length, attached by word descriptors at each end, been presented with vertical lines and lines with additional descriptors.

METHODS

The subjects were assessed before and after treatment according to ROM, muscle power and pain intensity of lower back by using goniometer, VAS and modified Oswestery low back pain questionnaire. Ten subjects (group A) received reflexology technique program. All subjects in the study group received the reflexology technique program. The other 10 patients (group B) were only controlled. This technique was applied where the subject lies on a hydraulic chair, and the following procedure was done.

Reflexology Technique:

Reflexology is practiced by applying pressure with the tip of the thumb, the thumb is bent to execute a proper pressure, and this pressure can be either in a circular motion or an intermittent way of pressure and release in rhythmic manner. The hand method should be demonstrated 3-4 minutes on each tender reflex point. To give a complete foot massage, spend 20 seconds on each reflex point on each foot. Subjects were offered 3 sessions per week, at a maximum of 3 weeks, the duration was 30 minutes for each session.

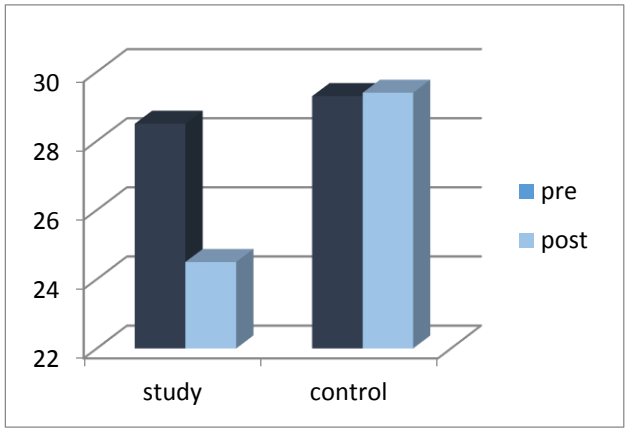
RESULTS

Twenty female patients having mechanical low back pain were randomly selected from general population and divided into two groups; a control group was left untreated, and the study group received reflexology for a total duration of 3 weeks. Great improvement was noticed after 3 weeks in the study group, while no improvement was noticed in the control group.

Pain Intensity according to VAS

Pain: According to VAS, the results revealed a non-significant variance between the study group and control group before intervention ($p = 0.43$). While after intervention, there was a significant decline of pain in the study group compared to that of the control group ($p = 0.000$). Moreover, there was a very highly significant decrease in pain within the

study group after treatment (p= 0.005) (Table 1and Graph-1)



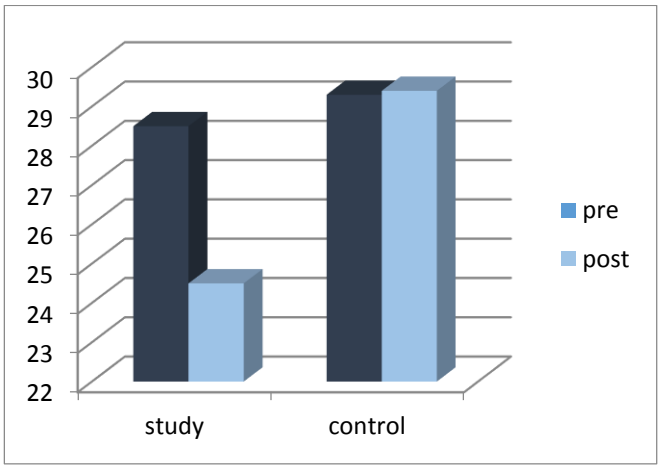
Graph-1: Mean values of pain intensity according to VAS pre and post treatment in the study and control groups

According to Oswestry, the results revealed a non-significant difference between the study and control groups before intervention (p= 0.45). After intervention, there was a significant decrease of pain in the study group compared to that of the control group (p= 0.000). Moreover, there was a very highly significant decrease in pain within the study group after treatment (p=0.005) as shown in table (2) and Graph-2

Table 2: Comparison between the study and control groups as regard to Oswestery pre and post treatment.

Pain\ Oswestery	Study group Mean + SE	Control group Mean + SE	P
Pre	23.9 + 1.29	24 + 0.42	0.45
Post	11.2 + 0.57	24.2 + 0.41	0.000
P	0.005	0.157	

Pain severity according to Oswestry

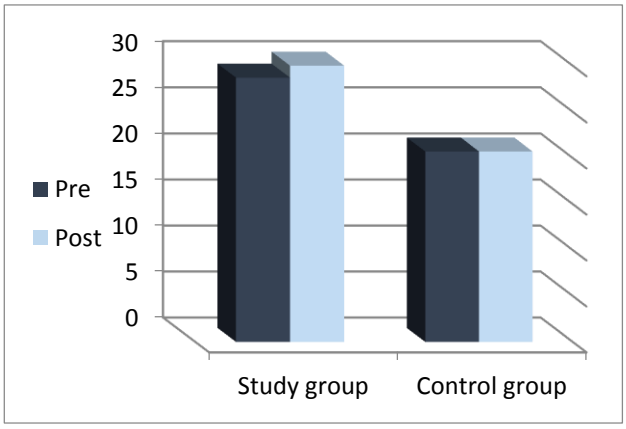


Graph 2: Mean values of pain severity according to Oswestery pre and post treatment in the study and control groups.

Range of motion (ROM):
As for the lumbar rotation, there was no significant difference between the study group and control group (p=0.912), there also was non-significant difference among before and after treatment of both control (p=1.00) and study groups (p=0.10) (table 3, Graph-3).

Table 3: Comparison between study and control groups in lower back goniometer measurement of ROM pre and post-treatment.

ROM	Study group	Control group	P
Pre	28.7 + 0.8	20.7 + 1.3	0.912
Post	30 + 0.0	20.7 + 1.3	0.912
p	0.10	1.00	



Graph-3: Mean values of ROM pre and post treatment in both study and control groups.

DISCUSSION

Back pain is a very common syndrome affecting most adults at some point of their lives. In the majority of cases, the cause of back pain can be linked to the way that the bones, muscles and ligaments in the back work together. It forces the person to seek treatment .Once a person is diagnosed with low back pain various treatment methods can be applied including nonsteroidal anti-inflammatory drugs (NSAIDs), heat or cold compresses, regular exercises, massage, electrotherapy[12,13,14,15], recent treatment techniques such as reflexology and acupuncture has been recently proved.[16]

This study was conducted to explore the noninvasive characterization of the RAs mapped on the feet as related to the lumbar vertebrae as per existing literatures[15] by skin swept source-optical coherence tomography (SS-OCT)[14] in normal subjects and patients suffering from low back pain (LBP)[3] .

Reflexology technique is a therapy used with a lot of pain causing problems; this study is aiming to evaluate the effectiveness of reflexology technique in reducing pain and improving range of motion of

low back in patients suffering from mechanical low back pain The results of the current study revealed positive findings and significant difference between the study and control groups by comparing the results of both groups at the end of the third week.[17] We found that reflexology significantly accelerates regaining functional ability and limiting pain in the study group.

In accordance to the findings of the present work, Park and Cho[18] mentioned that VAS scores for pain were reduced after reflexology technique application participants diagnosed with non specific low back pain were randomized into two groups: seven in reflexology group and eight with the sham group. Both groups were given 40-minitue weekly treatment for six consecutive weeks. 10 cm visual analogue scale (VAS) was used to measure pain intensity .VAS score in the reflexology group reduced by an average of 2.5 cm at 18-week follow up. Four participants in the sham group felt that their pain had increased after 6 weeks, and four had a small improvement.

There are many studies used reflexology technique for different pain causing factors, where concluded benefit of reflexology reducing pain. Chou et al.[14] used reflexology to find its efficacy in patients with postoperative pain after general surgery. He treated Sixty (60) adult patients of general surgery. The results showed that reflexology technique showed a significant decrease in pain scores and the requirement and quantity of drugs, he concluded that reflexology causes a significant reduction of requirement and quantity of painkillers and significant reduction of pain score in post-operative patients of general surgery.

Reflexology was shown to have a dramatic effect on children with constipation and fecal incontinence where the number of bowel movements increased and incidences of soiling was reduced.[8] A positive reduction was noted in systolic pressure, and also in triglycerides after four weeks treatment after reflexology.[18] Additionally Penny[19] tested Twenty-three in-patients with breast or lung cancer. Following the foot reflexology intervention, patients with breast and lung cancer showed a significant decrease in anxiety. One of three pain measures experienced that patients with breast cancer experienced a significant decrease in pain.

Moreover, the usefulness of reflexology for CLBP was investigated in 243 patients were randomized to three groups: relaxation, reflexology, or non-intervention. After amending for pre-treatment marks, repeated measures of ANCOVA set up no significant changes between the groups' pre and post treatment for pain and functioning. At hand, there was a leading effect in pain reduction. Data illustrates that pain decline was highest in the reflexology group and for patients with lower limb amputations and phantom limb pain.[12,18]

Moreover, the effectiveness of reflexology for CLBP was investigated in 243 patients; they were randomized to three groups: reflexology, relaxation, or non-intervention. After adjusting for pre-treatment scores repeated measures ANCOVA set up no significant changes between the groups' pre and post treatment on the primary outcome measures of pain and functioning. Data illustrates that pain decline was highest in the reflexology group.[1] and for patients with lower limb amputations and phantom limb pain.[5,20]

Conclusion: We found that the reflexology technique was effective and safe to be applied for cases of mechanical low back pain. It results significant decrease in pain within the study group after treatment.

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