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THE EFFECT OF FOOT REFLEXOLOGY ON FATİGUE SEVERİTY İN PATİENTS UNDERGOİNG HEMODİALYSİS TREATMENT

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ABSTRACT

Purpose and aim: Fatigue is one of the most common side effects, which is known to be a major stressor and a debilitating complaint. This study aimed to study the effect of sole reflexology on fatigue severity in patients undergoing hemodialysis.
Methods: This study was a clinical trial, conducted on 52 patients undergoing hemodialysis in the Dialysis Center, Imam Khomeini Hospital in Zabol city in two experimental (26 patients) and control (26 patients) groups. Information-gathering was through a demographic questionnaire and fatigue severity investigation. After completion of the questionnaire by the subjects, foot reflexology was performed by a trained researcher for the experimental group for two 30 minute sessions per week during 5 weeks. Fatigue severities in both groups were evaluated again at the end of the third and fifth weeks. Data were analyzed using independent t-test, chi-square test, Fisher's exact test, and analysis of variance with two-sided repeated measures.
Findings: In this study, means of fatigue severity score in patients undergoing hemodialysis in the test group before and after foot reflexology, showed a significant difference; also, two-sided analysis of variance with repeated measures showed there is significant difference after intervention in terms of the intensity of fatigue between the two groups ($p<0.001$).
Conclusion: Based on the results of this study, reflexology, which is a low-cost and safe method, significantly reduces fatigue in patients treated with hemodialysis.

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Introduction

Incidence and prevalence of chronic kidney disease in the world, including Iran, is growing and now has become a threat and global health problem [1]. In America, about 400,000 people at the end of 2004 were diagnosed with chronic renal failure. Of this number more than 300,000 people have been treated with hemodialysis [2]. Chronic kidney disease is one of the diseases that not only jeopardize physical health but also jeopardize other aspects of health. Nowadays, the patients are using modern methods of treatment, including hemodialysis and find relief from premature death, in case they do not receive a successful kidney. But at the same time they suffer a whole range of physical, psychological, social and economic problems [3,4].
According to reports from Research Center and renal transplantation in Iran, in 2007, about 29000 patients were diagnosed with chronic renal failure, of which 14,000 were treated with hemodialysis [5]. In addition to the complications during dialysis hemodialysis treatment such as hypotension, muscle cramps, nausea, it also has long-term complications. The complication is known as uremic syndrome and includes motor neuropathy, myopathy of skeletal or cardiac muscle, vascular changes of anemia, bone metabolism dysfunction, varied somatic complaints, unconsciousness, tiredness, depression and anxiety [6].
Fatigue is one of the most troubling and most common symptoms reported by Hemodialysis patients [7]. Behavioral factors, factors associated with treatment and personal characteristics are the causes of fatigue in these patients [8]. Fatigue reduces the feeling of wellbeing in these patients [9]. Despite advances in treatment, fatigue and fluid and food restriction, are still the

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top stress causing factors in dialysis patients [10]. Fatigue is a multidimensional concept and to understand its different aspects by the nurse for better planning and implementing strategies, will help relieve fatigue in hemodialysis patients [11].

Reflexology is a cam treatment with a long history and now this method is one of six adjunctive treatments in America. This method is one of the most popular and the most widespread method of alternative medicine [12].

Ferrer wrote reflexology is a firm massage in certain areas of the body that can be effective in relieving physiological conditions and provide peace and relaxation in various organs of the body [13]. Reflexology it is applicable for the treatment of various diseases such as migraine headaches, respiratory problems, blood flow problems, pain, stress, anxiety, high blood pressure, insomnia and also in the treatment of diseases such as back pain, neck pain, chronic fatigue, indigestion and other stress-related diseases [14].

Foot reflexology is done in this way; after gentle massage of the foot, we hold the heel with the left hand we push at the bottom of the foot and bend it and unbend it. Then, with the thumb we pressure the solar plexus directly [15]. Reflexology medicine experts believe foot has many reflex points can be related and compatible with all body parts and organs [16]. One of the actions that can be used as a nursing intervention to reduce fatigue is reflexology [17]. Many studies have studied foot reflexology massage as a nursing intervention that is noninvasive under different conditions. For example, we can improve anxiety in cancer patients undergoing chemotherapy [18], the effect on blood pressure, triglyceride and blood sugar levels [19 , 20], decrease depression and improve immune function [21], pain relief [22], fatigue [23], reducing the symptoms of asthma [24], multiple sclerosis [25]. This study assesses the effects of foot reflexology on fatigue in hemodialysis patients in the city of Zabol in 2014.

Methodology:

In this clinical trial study, 52 patients undergoing hemodialysis were selected in the Dialysis Center, Imam Khomeini Hospital in Zabol city in 2014. with inclusion criteria of having at least 18 years of age and a history of at least 6 months of dialysis, willingness to participate in this study, being on the list of weekly dialysis three times a week, each time 32 to 4 hours of hemodialysis, having full consciousness, acceptable oral hearing ability to answer questions, having a degree of fatigue based on the fatigue questionnaire. In the case of each of the following conditions during the research, the study samples will be excluded: Patients who died during the study, transplantation during the study, the patients who change their mind during the study and are not willing to cooperate.

In order to collect data two forms were used:

1. Demographic questionnaire on demographic characteristics, as well as information about the disease, including dialysis duration and history

2. Fatigue Severity Scale. The fatigue of the patient was obtained by his responses to 9 questions.

Each question had been assigned to seven numbers (from one to seven) and the number one as the lowest and the number seven represents the maximum fatigue. And patients according to fatigue chose the numbers. This tool is one of the best known and most functional fatigue scales to measure the intensity of fatigue.

This scale is used in most medical research and at the moment is used in ten countries, Australia, Britain, Canada, France, Germany, Spain, New Zealand, Switzerland, Taiwan and America. The reliability of this tool is approved in various studies by the Shahabi, Rasuli, Zakiri moghadam and Tarbiat Modarres University faculty members with alpha coefficients of 94%, 88%, 91% and 83%. The Content validity was also approved in study of Schneider and Bonner, Zakeri Moghadam, and Ghafari [25-29]. For implementation method samples were randomly divided into two groups of experimental and the control group. And then demographic questionnaire and fatigue scale to determine fatigue was given to them.

The experimental group consisted of 26 participants and duration of the program and steps reflexology massage was described to them. Reflexology was done by a trained researcher two times a week as 30-minute sessions for 5 weeks. For reflexology stages the patient was asked to close his eyes and be totally relaxed, after gentle massage of the foot, we hold the heel with the left hand we push at the bottom of the foot and bend it and unbend it. Then, with the thumb we pressure the solar plexus directly. This was performed for 30 minutes for both legs [30,31]. After the end of the third week and the fifth fatigue intensity scale was completed by both groups. After the completion of scale with regard to fatigue scores the patient was placed in one of the categories of mild, moderate and severe fatigue.

Data for this study were analyzed using independent t-test, chi-square test, Fisher's exact test, two-way ANOVA with repeated measures and Bonferroni test.

Findings:

The collected data were evaluated by SPSS v.20 software and final analysis was performed on 52 patients at the considered time. For consistency between the two groups before the intervention, Kolmogorov-Smirnov test was performed and distribution of data was normal (0/3=sig).

The findings of this study showed that patients in the intervention and control groups were matched in terms of demographic characteristics (Table 1). Mean of fatigue in the intervention and control groups before plantar reflexology, was 50/30 and 53/63 and there was no statistically significant differences (p=0/878). The two-way analysis of variance with repeated measures showed no statistically significant difference between the mean score of fatigue between intervention and control groups at the end of the third and fifth week (p,0/001) (Table 2 and Figure 1).

Table 1: Demographic characteristics of patients undergoing hemodialysis in both intervention and control groups

Group / variable		Intervention	Control	Results
		Amount (percent)	Amount (percent)	
Age	The mean (SD)	48/69(10/60)	50/04(13/79)	p =0/695 t =0/394 Df: 50
Gender	Male	13(40/6)	19(59/4)	p=0/157***
	Female	13(65/0)	7(35/0)	
marital status	Single	18(60/0)	12(40/0)	p=0/172***
	Married	8(36/4)	14(63/6)	
Blood type	A	9(50/0)	9(50/0)	p=0/855**
	B	3(42/9)	4(57/1)	
	AB	3(75)	1(25)	
	O	11(47/8)	12(52/2)	
Education	Below diploma	14(57/6)	19(42/4)	p=0/15**
	Diploma or higher	7(36/8)	12(63/2)	
Location	Rural	11(39/3)	17(60/7)	**p=0/095
	City	15(62/5)	9(37/5)	

* Independent t-test, **chi-square test ***Fisher's test

Table 2: Comparison of the mean fatigue score for patients at time 1

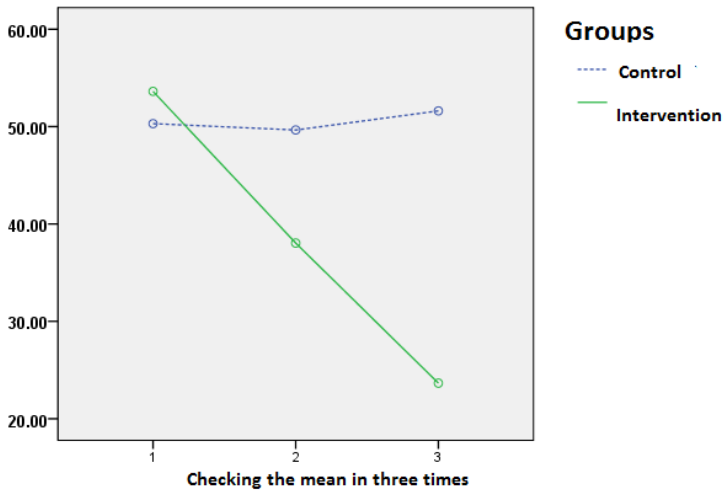
Time / Groups		1	Significance level
Intervention	Mean	53/61	p =0/878* t =1/2 Df: 50
	SD	10/12	
Control	Mean	50/30	
	SD	9/41	

*Independent t

Table 3: Distribution of mean and standard deviation of fatigue in both intervention and control groups at three times

Time / Groups		1	2	3	Significance level
Intervention	Mean	53/61	38/08	23/65	(*<0/0001)
	SD	10/12	12/72	10/34	
Control	Mean	50/30	49/65	51/61	
	SD	9/41	10/24	7/17	

* Two-way analysis of variance with repeated measures



Discussion

The findings of this study showed that most of the two groups have had moderate fatigue. The frequency of fatigue in patients in study of Brown (32), Schneider (33), Visber (34), (35), Kim (36), Liu (37) and Mortag (38) was reported as 90, 58, 69, 70/63, 77/9/, 50 and 0/071.The difference in fatigue could be due to differences in behavioral factors, factors related to the treatment and the patient's personal characteristics (39).

According to the results of the comparison of fatigue and reduce fatigue compared to before intervention and because almost the only fundamental change in the lifestyle of the patients during these 5 weeks, was the implementation of the program of metatarsus during dialysis in hospital, it can be said that reflexology is effective in reducing their fatigue. Findings from several studies also indicate it. Mackereth and colleagues used reflexology to increase muscle relaxation in MS patients (40). Reflexology through physiological changes causes relaxation in the person (41). Several studies have examined the effects of Reflexology on people with different conditions and in accordance with the present study; it was effective in reducing fatigue. Yang's study on 16 patients with cancer receiving chemotherapy showed that foot reflexology can significantly reduce fatigue (42). unlike the results of this study, the results of a study on the effects of massage on fatigue in cancer patients did not show a significant decrease in fatigue immediately after the massage (43). The authors believe that the cause of this issue is that Fatigue in Cancer Patients is usually chronic therefore; we must apply massage intervention for a longer period.

Conclusion:

It seems that performing foot reflexology, as an easy, inexpensive, and noninvasive method along with dialysis treatment can have desirable effects on the quality of life in hemodialysis patients and also it reduces fatigue for them.

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