

A Study to Assess the Effectiveness of Massage on Fatigue among Patients with Chronic Kidney Disease Undergoing Hemodialysis in the Selected Teaching Hospital at Punjab

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Abstract

An interventional study was conducted to assess the effect of back and lower leg massage on fatigue in chronic kidney disease (CKD) patients undergoing hemodialysis (HD). Fatigue is an invisible and highly prevalent symptom in all chronic illnesses. Fatigue is a common symptom reported by people with CKD is a nonspecific and invisible symptom and is a phenomenon. The objective of the study was to find out the effect of massage of body on fatigue in CKD patients undergoing HD and to promote the comfort by applying intervention and minimizing the fatigue by increasing the energy level.

Keywords: Hemodialysis, massage, CKD

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INTRODUCTION

Fatigue is a common symptom reported by people with Chronic Kidney Disease (CKD) is a nonspecific and invisible symptom and is a phenomenon. There is limited understanding of the level of fatigue experienced by people suffering from CKD, with research currently limited to people treated with HD. Fatigue is a highly prevalent symptom experienced by people who live with chronic illness, including those with chronic renal failure who require maintenance HD. Massage is the term applied to certain manipulations of the soft tissues. These manipulations are most efficiently performed with the palmer aspect of hand and administered for the purpose of producing effects on nervous system, muscular system as well as on the local and general or systemic circulation of the blood and lymph.

Patients who experience symptoms of kidney failure often feel tired, have a

decreased appetite, trouble concentrating, swelling in their feet and hands, muscle cramps, itching, and either a decrease or increase in urination^[1].

Intense review of literature was done before conducting the present study. Mukadder Mollaoglu (2009) found that fatigue experienced by people with HD in the study was very high, and their energy level was low^[2]. There is need to apply some alternate therapy to decrease the level of fatigue and increase the level of energy in the patients, in order to make patients at ease during and after HD^[3].

Treatment of fatigue depends on its direct cause, but there are several commonly prescribed treatments for non-specific fatigue, including dietary and lifestyle changes, the use of essential oils and herbal therapies, massage therapies, meditation, relaxation exercises, traditional Chinese medicine and color

therapy etc. are useful in relieving fatigue^[4]. Shiow-Luan-Tsay (2004) found effectiveness of acupressure on fatigue in patients with End Stage Renal Disease and found that acupressure is helping in promoting comfort and relieving fatigue^[5]. HD is a process of cleansing the blood of accumulated waste products. It is used for patients with end stage renal disease or for acutely ill patients who require short term dialysis.

The best way to produce energy is regular aerobic exercise. That is that may improve the energy level if the intervention can be provided, the participants 'energy can be saved or increased in appropriate ways, for the daily activities in CKD patients. Fatigue and its effects can be minimized by doing regular exercise^[6].

NEED FOR THE STUDY

Patients with CKD spend most of time in the hospital as an indoor and outdoor patient this effects their energy and quality of life. Fatigue, a common symptom reported by people with CKD is a nonspecific and invisible symptom and is a phenomenon. Everyone can benefit from reflexology (massage), Amazing ability to harmonize all body systems very quickly after application^[7]. There is need to assess the level of fatigue and energy in the patients. In order to make patients at ease during and after HD, alternative therapies such as acupressure, aquatic therapy, massage therapy, meditation, deep breathing, biofeedback, yoga have been helpful to relieve fatigue^[8].

OBJECTIVES OF THE STUDY

- 1) To assess the level of fatigue among patients with CKD undergoing HD.
- 2) To assess the effect of massage among patients with CKD undergoing HD.
- 3) To find out the association between levels of fatigue among CKD patients undergoing HD with selected demographic variables.

Table 1: Demographic Variables of Experimental and Control Group Study Subjects (N = 200)

PURPOSE OF THE STUDY

Purpose of the study was to assess the effectiveness of back and lower leg massage on HD related fatigue in CKD patients.

DATA CLLECTION

The study was conducted at Dialysis Unit at Govt. Medical College & Guru Nanak Dev Hospital, Amritsar, Punjab. Sample size was 200 it was divided into two groups control and experimental. Data was collected by purposive sampling technique.

Tool for Data Collection

Data were collected by using tool comprised of two parts. Part-1 structured questionnaire about 50 questions related to demographic variables, CKD, HD, fatigue and massage. Part-II of the tool comprised of two scales, one is VAS-F (Visual Analogue Scale-Fatigue) that is a horizontal line at one end no fatigue and on other end maximum fatigue and other is sub scale of energy that is a horizontal line at one end no energy and on other end maximum energy.

Procedure for Data Collection

The data were collected before the start of HD in both group study subjects. The study subjects of experimental group were given intervention as massage in lower back and lower leg massage with olive oil as intervention for 5 minutes each one hour before the completion of HD and control group was given no intervention but only HD. Data collection was done after taking permission and written consent was obtained from study subjects before data collection. Data were collected as per inclusion criteria & were analyzed by using SPSS 15 under statistical & inferential methods under three sections.

S. No.	Demographic Variables	Experimental group N = (100),%		Control group N = (100),%		Total subjects N = (200),%	
		No	(%)	No	(%)	No	(%)
1	Age in years						
	≤21 years	01	1.0%	01	1.0%	002	1.0%
	21–29 years	08	8.0%	09	9.0%	017	8.5.0%
	30–39 years	08	8.0%	06	6.0%	014	7.0%
	40–49 years	26	26.0%	25	25.0%	051	25.5%
	≥ 50 Years	57	57.0%	59	59.0%	116	58%
2	Gender						
	Male	59	59.0%	68	68.0%	127	63.5%
	Female	41	41.0%	32	32.0%	073	36.50%
3	Marital status						
	Married	93	93.0%	95	95.0%	188	94%
	Unmarried	07	7.0%	05	5.0%	012	6.0%
4	Educational status						
	Primary	23	23.0%	24	24.0%	47	23.50%
	8 th .Class	15	15.0%	13	13.0%	28	14.0%
	Metric	28	28.0%	31	31.0%	59	29.50%
	10+2	16	16.0%	12	12.0%	28	14.0%
	Graduate	18	18.0%	20	20.0%	38	19.0%
5	Occupation						
	Govt.	11	11.0%	10	10.0%	21	10.5%
	Semi-Govt.	08	8.0%	09	9.0%	17	8.5%
	Private	25	25.0%	23	23.0%	48	24.0%
	Business	07	7.0%	11	11.0%	18	18.0%
	Any other	49	49.0%	47	47.0%	96	48.0%
6	Monthly income						
	< 5000	41	41.0%	43	43.0%	84	42.0%
	5001–10,000	30	30.0%	27	27.0%	57	28.5%
	10,001–20,000	17	17.0%	15	15.0%	32	16.0%
	20,001–30,000	10	10.0%	08	8.0%	18	9.0%
	>30,000	02	02 .0%	07	7.0%	09	4.5%
7	Presence of Anemia						
	Severe Anemia	05	05.0%	03	3.0%	08	04.0%
	Mod. Anemia	37	37.0%	36	36.0%	73	36.5.0%
	Mild Anemia	51	51.0%	57	57.0%	108	54.0%
	No Anemia	07	07.0%	04	4.0%	11	5.5.0%
8	Frequency of HD						
	Once a week	05	5.0%	12	12.0%	17	8.5.0%
	Twice a week	61	61.0%	68	68.0%	129	64.5.0%
	Thrice a week	34	34.0%	20	20.0%	54	27.0%
9	Duration of HD						
	Two Hours	00	00	00	00	00	00
	Three Hours	38	38.0%	44	44.0%	82	41.0%
	Four Hours	62	62.0%	56	56.0%	118	59.0%

As per above Table 1, total 200 CKD patients participated in the present study. In the above table, percentage distribution of the study samples determined as per the demographic variables like age, gender, marital status, education, occupation and

monthly income. Percentage distribution of the study samples also determined as per the presence of anemia, frequency and duration of HD for experimental group, control group and total participants differently.

To Assess the Level of Fatigue among Patients with CKD Undergoing HD

As depicted in Table 1, total 200 CKD patients participated in the study & Maximum 58% (116) subjects were above the age of 50 years, 25.5% (51) of 40–49 years, 7.0% (14) of 30–39 years, 8.5% (17) of 22–29 years, 1% (2) was less than 21 years of age. Majority 63.5% (127) subjects were male, 36.5% (73) were female. Majority subjects of the study 94% (188) were married and 6% (12) were unmarried. Majority subjects of the study 29.5% (59) were matric, 23.5% (47) were primary pass, 19% (38) were graduates, 14% (28) were 8th class pass and 10+2 made 14% (28) of the study population. Majority, 48% (96) were in any other, in this category were laborer, house wives and agriculture people, 24% (48) subjects were in private job, 10.5% (21) Govt., and 9% (18) were doing business, 8.5% (17)

subjects were from semi govt. organization. Majority subjects of the study 42% (84) had less than 5000 monthly income, 28.5% (57) 5001–10000, 16% (32) 10001–20000, 9% (18) 20001–30000, 4.5% (9) had more than 30000 monthly income. Majority study subjects 54% (108) had mild anemia, 36.5% (73) had moderate anemia, 5.5% (11) subjects had no anemia and 4% (8) had severe anemia. Majority 64.5% (129) subjects had HD as twice a week, 27% (54) had thrice a week, 8.5% (17) subjects had frequency as once and no subject had frequency as four times a week. Total 200 CKD patients participated in the study majority 59% (118) subjects had 4 hours duration of HD and 41% (82) had 3 hours duration of HD. No study subject had 2 hours duration of HD in the present study.

Table 2: Mean Score, SD and Percentage of Presence of Fatigue among Patients with CKD Undergoing Hemodialysis Experimental Group & Control Group During Pre-test: Total Subjects (N = 200).

Pre-interventional	Experimental group N = 100				Control group N = 100			
Fatigue characteristic	N	%	Mean Score	SD	N	%	Mean Score	SD
Minimum fatigue	00	00.0%	3.07	0.685	01	01.0%	2.71	0.729
Mild fatigue	20	20.0%			42	42.0%		
Moderate fatigue	53	53.0%			42	42.0%		
Maximum fatigue	27	27.0%			15	15.0%		

As depicted in the above Table 2, presence of fatigue as moderate fatigue, maximum fatigue, mild fatigue and minimum fatigue in experimental group and control group study subjects. Each group had 100 subjects during pre-test period or pre-HD period. In the experimental group, presence of moderate fatigue 53% (53), maximum fatigue 27% (27), mild fatigue 20% (20) and no study subject had minimum fatigue. Mean score 3.07 with SD (0.685) in experimental group. But female study subject had more level of fatigue with mean score 3.10 that was greater than mean score of the experimental group. So the female study

subjects suffered with more fatigue in comparison to male study subjects during the pre-interventional period. The level of energy or vitality in experimental group study subjects was low as the level of fatigue was more in the study subjects undergoing HD. In the control group, presence of moderate fatigue 42% (42), mild fatigue 42% (42) and maximum fatigue 15% (15) and 1% (1) minimum fatigue and mean score 2.71 with SD (0.729) in control group study subjects. The percentage of energy or vitality was low in control group study subjects. First objective of the study is achieved.

To Assess the Effect of Massage Among Patients with CKD Undergoing Hemodialysis

Table 3 reveals the results of fatigue assessed during pre-interventional period in CKD patients undergoing HD in the experimental group. The study subjects were 100 in number. The mean score of fatigue was 3.07 and SD was (0.685) during pre-interventional period in the study subjects as depicted in the above table. The results of fatigue assessed during post interventional period the level of fatigue assessed during pre-procedure (HD) in CKD patients undergoing HD in the control group. The study subjects were 100 in number. The mean score of fatigue was 2.71 and SD (0.729) during the pre-procedure (HD) period in the study subjects. Mean score of fatigue was 2.08 and SD (0.662) with highly significant p value.000 during the post procedure (HD) period in the study subjects. It showed that subjects in control group had less level of fatigue than that of subjects in the experimental group during the pre-HD assessment as assessed by the researcher. The mean difference of pretest fatigue between experimental and control group was.360 and mean difference of posttest fatigue between experimental and control group was 0.260. Mean difference of posttest fatigue between experimental and

control group 1.250 and SD was (0.525) with a mean difference.620 and with significant.001 p value. But during the post HD period experiment group subjects had less of fatigue with mean score 1.82 and SD was (0.626).

But control group study subjects had more fatigue during post HD period with mean score 2.08 and SD(0.662) and the mean score of pre and period in CKD patients undergoing HD in the experimental group as depicted in the above table, mean score of fatigue was 1.82 and SD was (0.626) with highly significant p value.000. The difference between the pre and post mean score of fatigue was 1.250 and SD was (0.520) with a mean difference.620 and p value.001 in the study subjects as depicted in the above table. Post fatigue was .630 with SD.525 with mean difference.620.

It showed that HD is also a remedial measure to reduce the level of fatigue but the results concluded that massage is an effective therapy to minimize the fatigue and restore the energy as shown by the statistical results of experimental group subjects. The body massage (massage of back of lower leg and lower back) is more effective to reduce the level of fatigue in subjects undergoing HD as it is statistically significant.

Table 3: Mean Score, S D, P Value of Level of Fatigue among Patients with CKD Undergoing HD in Experimental and Control Group (N: 200).

Fatigue characteristics	Experimental group n = 100		Control group n = 100		Mean Difference	p Value
	Mean	SD	Mean	SD		
Level of Fatigue-Pre HD	3.07	0.685	2.71	0.729	0.360	*** 0.000
Level of Fatigue-Post HD	1.82	0.626	2.08	0.662	-0.260	***0.000
Difference of fatigue in pre & post HD	1.250	0.520	.630	0.525	0.620	**0.001

Significant p value = 0.05; **Highly Significant p value = 0.001;

***Highly Significant p value = 0.000

To Find Out Association Between Level of Fatigue among CKD Patients with Selected Demographic Variables

According to Table 4 Association of fatigue according to gender in the experimental group during pre-interventional period, total study subjects were 100 with the moderate fatigue 53%, maximum fatigue 27% and mild fatigue 20% the p value .049 & chi square value of 6.043^a with fatigue p value 0.049 was found to be statistically significant in the experimental group Association of fatigue according to frequency of HD in the experimental group during pre-interventional period, total study subjects were 100 with the moderate fatigue 53%, maximum fatigue 27% and mild fatigue 20% the p value 0.977 & chi square value

of 0.046^a with fatigue chi square value 0.046^a was found to be statistically significant in the experimental group. Hence there was no significant statistical relationship was proved with other selected demographic variables except gender in the experimental group study subjects and frequency of HD but logically positive relationship was determined. And, SD 0.662 during post HD period (less increase in energy in control group study subjects), Similarly there was no significant statistical relationship is proved with selected demographic variables in the control group study subjects but logically positive relationship is determined. Third objective and hypotheses of the study is achieved.

Table 4: Minimum, Mild, Moderate, Maximum Fatigue, Chi Square and p Values of the Selected Demographic Variables with Fatigue in the Control and Experimental Group (N = 200).

Demographic Variables	Experimental group n = 100						Control group n = 100					
	Fatigue						Fatigue					
	Mi%	MI %	Md %	Mx %	X ²	p value	Mi %	MI %	Md %	Mx %	X ²	Pvalue
Age	-	20	53	27	12.692 ^a	.123 ^{NS}	1	42	42	15	10.286 ^a	.591 ^{NS}
Gender	-	20	53	27	6.043 ^a	*.049 ^S	1	42	42	15	4.456 ^a	.216 ^{NS}
Marital status	-	20	53	27	4.184 ^a	.123 ^{NS}	1	42	42	15	1.324 ^a	.723 ^{NS}
Education	-	20	53	27	9.584 ^a	.295 ^{NS}	1	42	42	15	12.020 ^a	.444 ^{NS}
Occupation	-	20	53	27	13.337 ^a	.345 ^{NS}	1	42	42	15	16.956 ^a	.526 ^{NS}
Monthly Income	-	20	53	27	9.465 ^a	.489 ^{NS}	1	42	42	15	12.937 ^a	.607 ^{NS}
Presence of Anemia	-	20	53	27	5.649 ^a	.464 ^{NS}	1	42	42	15	13.471 ^a	.142 ^{NS}
Frequency of HD	-	20	53	27	6.611 ^a	.158 ^{NS}	1	42	42	15	4.112 ^a	.904 ^{NS}
Duration of HD	-	20	53	27	*.046 ^{aS}	.977 ^{NS}	1	42	42	15	5.593 ^a	.133 ^{NS}

NS: Non-significant at $p > 0.05$; Significant at $p = 0.05$; * Significant at $p = 0.049$

NS: Non-significant at $X^2 > 0.05$; Significant at $X^2 = 0.05$; * Significant at $X^2 = 0.046^a$

LIMITATIONS OF THE STUDY

The number of sample (200) was limited because of shortage of time. Researcher had to work from morning till late evening for data collection.

DISCUSSION

The present study was conducted to assess the effectiveness of back and lower leg massage on fatigue among CKD patients

undergoing HD. In order to achieve the objectives and hypothesis of the study, an experimental design was adopted and intervention was given to the experimental group study subjects. The collected data was coded, organized, analyzed and presented under the four sections. The findings of the study have been discussed with reference to the objectives and hypothesis and with the findings of other

studies. The findings of the studies conducted by Morsch *et al.* (2006), Mukadder Mollaoglu (2009), T. Chandra (2011), Lee-O Bih *et al.* (2007), Liu H.E. (2006), Kang S.J. Kim (2008), Ching Cho *et al.* (2009) and Williams G Amy *et al.*, (2007) supporting the findings of present study^[9, 2, 10, 11, 12, 13 14, 15].

CONCLUSION OF THE STUDY

From the present study the following conclusion has been drawn:-There is a mild to worst degree of fatigue is present with low energy in CKD patients undergoing HD. Massage of body is effective to decrease fatigue and increase energy in CKD patients undergoing HD.

Massage therapy lead to two folds decrease in fatigue (3.07 and SD was 0.685 during pre-interventional period and mean score 1.250 and SD was 0.520) and more increase in energy or vitality in experimental group study subjects. There was one fold decrease in fatigue (mean score 2.71 and SD 0.729) during pre-HD period. These findings show that HD is also effective to some extent to decrease the level of fatigue.

HD is effective to decrease the fatigue and increase the energy or vitality among CKD patients undergoing HD. If the body massage is applied along with HD it is proved to be more effective as it is evident from the findings of present research study. So massage is beneficial as an alternate therapy for promotion of comfort and person is energetic and independently can perform activities of daily living.

NURSING IMPLICATIONS

This study has demonstrated the effectiveness of massage on level of fatigue in CKD patients undergoing HD and indicates the importance of focusing on these aspects of care. The use of the some self-report symptom used in this

study actively involves the patients. It is important for nursing professional to determine their patients' level of fatigue and assist them in developing strategies for both conserving and building energy. The findings of the present study can be applied to nursing administration, nursing education, nursing practice, nursing research and general public.

RECOMMENDATIONS

The findings of the study serve as a basis for professional nurses to conduct further studies on effect of alternate therapies on fatigue and energy in CKD patients undergoing HD. The present study might open up new avenues for exploring many other issues in this area by nurse researchers.

A chapter of massage therapy can be included in the curriculum of teaching programme. As govt. of India is promoting the traditional medical system (AYUSH) similarly massage therapy along with other relaxation techniques can be promoted. General population is not having adequate knowledge and awareness about the skill of application of massage therapy. So massage therapy is less commonly practiced in these days.

The reason may be due to modernization most people have been forgotten the old practices. Therefore such studies can be conducted in more number so that maximum number of patients with chronic ailments could be benefitted from such studies.

The relatives of CKD patients undergoing HD can be trained to apply massage therapy to promote comfort of such patients. It will help in significant improvement in the quality of life of the patients with chronic ailments. This method will prove cost effective in

regaining improved health status in health and diseased conditions.

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