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Research Paper

Effectiveness of Footbath Therapy on Fatigue Among Patients with Chronic Renal Failure in Selected Hospitals at Mangalore

Medical Science

KEYWORDS : Effectiveness, fatigue, foot bath therapy, chronic renal failure.

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ABSTRACT

Fatigue has been identified by end stage renal disease patients who are under haemodialysis treatment as a distressing and disabling symptom that interferes their ability to enjoy life and to take care of themselves. This study is to assess the effectiveness of footbath therapy on fatigue among chronic renal failure patients in selected hospitals at Mangalore. A quasi experimental, interrupted time series design was used for the study. Using purposive sampling technique, 30 chronic renal failure patients were selected (15 each in experimental and control group) and data was collected using demographic proforma and also with Piper Fatigue Scale-12. The results revealed that there was a significant difference between the pre test and post test fatigue scores in the experimental group $F_{(3,56)}$ *= 71.297,p< 0.05. The study concluded that footbath therapy was effective in reducing the fatigue among chronic renal failure patients.*

Introduction:

Kidney diseases are silent killers which largely affect the quality of life. As the kidney function slows the symptoms of uremia are experienced which includes feeling tired or weak, swelling of hands and feet, shortness of breath, loss of appetite, nausea, vomiting, difficulty in sleeping etc.[1]

According to World Health organization (WHO) Global Burden of Disease project, diseases of the kidney and urinary tract contribute to global burden with approximately 850,000 deaths every year and 115,010,107 disability adjusted life years.CKD is the 12 th leading cause of death and 17 th cause of disability. [2]In India, according to survey conducted by National Kidney Foundation, the kidney diseases rank third amongst life-threatening diseases and estimates approximately 200,000 people in India to go into terminal kidney failure annually and millions more suffer lesser forms of kidney disease.[3]

Fatigue is a debilitating symptom or side effect experienced by many of the patients on long term dialysis. Fatigue has a considerable effect on patients health related quality of life and is viewed as being more important than survival by some patients. Symptoms of daytime sleepiness and depression overlap with fatigue making it difficult to target specific therapies[4].

In recent days, the use of complementary and alternative medicine has increased in conventional health care settings. Hydrotherapy is commonly used for relaxation and to maintain a person's state of health. A warm footbath warms the skin, which causes vessel dilation and induces heat dissipation. Footbath is an effective method of relaxation, since it induces significant increase in sympathetic activity. In addition, footbath increases white blood cells and natural killer cells cytotoxicity. When warm water footbath therapy is applied at a high temperature to the body the capillary vessels dilate, become flaccid and exhibit signs of loss of tension.[5]

Review of the Literature

A study was conducted in a tertiary care center in New Delhi to assess fatigue, depression and sleep problems among 47 patients receiving maintenance hemodialysis for >3 months. Patients demographic, medical and co-morbidity profile were recorded. Pittsburgh Sleep Quality Index and Epworth Sleepiness Scale were used to assess sleep abnormalities and quality. Beck Depression Inventory (BDI) was used to screen for depression. Fatigue Severity Scale was used to assess fatigue. The majority 68.1% of the patients was poor sleepers, but only five (10.6%) patients had borderline or abnormal daytime sleepiness. Of the patients, 44.7% reported fatigue and 72.3% had depression. Fatigue scores were found to be significantly associated with lesser frequency of dialysis (P < 0.05).Depression was found to be higher in those who were paying for the treatment themselves (mean BDI score 20 ± 11.8) as compared with those who were getting medical expenditure reimbursed (mean BDI score 12.9 ± 8.8). Fatigue positively correlated with that of daytime sleepiness (P = 0.02), poor nighttime sleep (P = 0.02) and depression (P=0.006).[6]

A longitudinal study conducted to assess the effectiveness of warm water footbath therapy on relieving fatigue and insomnia problems in clients with gynecologic cancer undergoing chemotherapy in Taiwan revealed that there was a significant reduction in fatigue and improvement in sleep quality during the study period.[7]

A quasi experimental study was conducted in Mangalore to determine the effect of footbath on sleep onset latency and relaxation among cancer patients. Forty samples were selected by purposive sampling technique. The tools used were baseline proforma, observation checklist for sleep onset latency and relaxation rating scale. Footbath (40-45 ºC) was administered at 8pm for 15minutes for five days to patients. The data was analyzed using descriptive statistics, ANOVA, paired t test, Karl Pearson correlation coefficient and chi-square test. The results revealed that majority 35(87%) experienced maximum relaxation. There was a significant difference between pre and post intervention sleep onset latency (F=56.15, 120.1, 143).[8]

Objectives:

1. To determine the level of fatigue among patients with chronic renal failure.
2. To evaluate the effectiveness of footbath therapy on level of fatigue among patients with chronic renal failure.
3. To find the association of the level of fatigue with selected demographic variables among patients with chronic renal failure.

Methodology:

Setting: The study was conducted in Mangala Kidney Foundation and Fr. Mullers Medical College Hospital, Mangalore.

Population: Chronic renal failure patients admitted in selected hospitals at Mangalore.

Sample size: 30(15 in the experimental and control group)
Sampling technique: purposive sampling technique

Research design: Quasi experimental, interrupted time series research design

Tools:

- Demographic Proforma
- Piper Fatigue Scale-12

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Data collection method:

- Prior to the data collection, permission was obtained from the concerned hospital authorities for conducting the study.
- Subjects were selected according to the selection criteria
- Written consent was obtained from the subjects and confidentiality was assured.
- The investigator collected demographic proforma and the fatigue level was assessed using the Piper Fatigue Scale-12.
- The control group received the standard treatment. The experimental group received foot bath therapy along with the standard treatment. Footbath therapy was administered for 15 minutes by the investigator for seven consecutive days.
- The investigator used a plastic bucket for immersion of feet to a depth of 10cm above the ankles. The temperature of water was measured by a lotion thermometer. The feet and ankles were immersed in water at temperature ranging from 40 to 42 ºC for 15 minutes.
- The post interventional assessment for fatigue was conducted on 3rd, 5th, 7th day of intervention for both the groups by using the same scale.

Results of the study

The highest percentage of subjects in the experimental group 6(40%) as well as in the control group 7(46.7%) were in the age group 51-60 yrs. Equal percentage 10 (66.7%) of the subjects in the experimental and the control group were males. Majority of the subjects in the experimental group 11 (73.3%) and control group 12 (80%) were married. Highest percentage of the subjects in the experimental group 8(53.3%) and control group 9(60%) had only hypertension as the other medical problem. Majority of the subjects in the experimental group 8(51.3%) and control group 9(60%) underwent hemodialysis twice a week. Majority 8(53.3%) of the subjects in the experimental and control group were suffering with chronic renal failure for 1-2 years.

In pre-test, the mean fatigue score of both experimental and control group was almost equal (6.41±0.48 and 6.5±0.31). The mean post test fatigue score of control group (6.53±0.29,6.61 ±0.21, 6.58±0.29) on 3rd, 5th and 7th days was higher than the mean post test scores of experimental group subjects (5.85±0.57, 5.03±0.71, 3.66 ±0.37).

The study revealed that footbath therapy was effective in reducing the fatigue as computed using ANOVA($F_{(3,56)}$= 2.76 ;p<0.05) and unpaired 't' test ($t_{(28)}$= 2.048 ,p<0.05).The association of fatigue scores with demographic variables was computed using Fishers exact probability test.

Data in table 1 shows that there was a significant difference between the pre test and post test fatigue scores in the experimental group [$F_{(3,56)}$= 2.76, p< 0.05]. Thus the null hypothesis $H0_1$ was rejected and the research hypothesis H_1 was accepted.

Data in table 2 shows that the mean post-test fatigue scores of the experimental group (5.85±0.57,5.03± 0.72, 3.66 ± 3.74) was significantly lower than the mean post- test fatigue scores of control group(6.54±0.29, 6.61±0.22, 6.58±0.29) in post test 1,2,3 respectively (post-test 1-t=4.12, post-test2-t=8.15, post-test3-t=23.78,p<0.05). Thus $H0_2$ was rejected and the research hypothesis H_2 was accepted i.e. the mean post-test fatigue score of the experimental group was significantly less than that of the control group. It indicated that footbath therapy was effective in reducing the fatigue among chronic renal failure patients.

Data in table 3 shows that there was no significant association of pre-test fatigue scores with the selected demographic variables of the experimental and control group.

Conclusion:

The present study proves that footbath therapy is effective in reducing the fatigue among chronic renal failure patients. Hydrotherapy is commonly used for relaxation and to maintain a person's state of health. Footbath is an effective method of relaxation, since it induces significant increase in sympathetic activity.

Table 1: F value showing the significant difference between the pre test and post test fatigue scores of the experimental group N=15

Experimental group	Sum of squares	df	Mean square	'F' value
Between group	64.55	3	21.52	71.297*
Within group	16.9	56	0.30	
Total	81.45	59	21.81	

$F_{(3,56)}$= 2.76 ;p<0.05 *significant

Table 2: Unpaired 't' test showing the significant difference between the post test fatigue scores of the experimental and control group N=15+15

Group		Mean score	Standard deviation	Mean difference	't' value
E	Post test1	5.85	0.57	0.69	4.12*
C		6.54	0.29		
E	Post test 2	5.03	0.72	1.58	8.15*
C		6.61	0.22		
E	Post test 3	3.66	3.74	2.92	23.78*
C		6.58	0.29		

$t_{(28)}$ = 2.048, p<0.05 *significant E=experimental group C=control group

Table 3: Association of pre-test fatigue scores of chronic renal failure patients in the experimental and control group with the selected demographic variables N=15+15

Group	Demographic variables	p value	df	Table value	Inference
	Age	0.03	3	3.182	Not significant
	Sex	0.04	1	12.706	Not significant
E	Marital status	0.6	3	3.182	Not significant
	Other medical/ health problems	0.38	2	4.303	Not significant
	Number of hemodialysis undergone in a week	0.08	2	4.303	Not significant
	Years of suffering with chronic renal failure	0.086	3	3.182	Not significant
	Age	0.53	3	3.182	Not significant
	Sex	0.29	1	12.706	Not significant
C	Marital status	0.20	3	3.182	Not significant
	Other medical/ health problems	0.03	2	4.303	Not significant
	Number of hemodialysis undergone in a week	0.19	2	4.303	Not significant
	Years of suffering withchronic renal failure	0.03	3	3.182	Not significant

Not significant; p>0.05

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