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Effectiveness of Muscle Stretching Exercise on Quality of Life of Haemodialysis Patients

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ABSTRACT

Chronic Kidney disease and end stage renal disease have become worldwide major public health problems. The prevalence of ESRD cases in India was 700,000 in 2004 and its incidence rate was 173 per100, 000 people these conditions increase patient's morbidity and mortality risks and put major economic strain on the health scare system. The study was aimed to find out the effectiveness of muscle stretching exercise on Quality of life of haemodialysis patients. A Quantitative research approach with Times Series Research design was used for the study to assess the effectiveness of muscle stretching exercise on Quality of Life of Haemodialysis patients. The study was conducted in Dialysis unit of selected Multi speciality Hospital. Simple Random sampling technique was used to assign the samples for experimental and control group in the study. Data was collected from 86 Chronic Kidney Disease patients undergoing haemodialysis. The Quality of Life Questionnaire was used measure the magnitude of the Quality of Life. The result of the study shows that in baseline the Quality of life mean score was 0.59 and after a week of muscle stretching exercise implementation the mean score was reduced to 0.34. In quality of life questionnaire lower the score higher the quality of life. Intervention was found to be significantly ($p.\leq 0.05$) effective in improvement of Quality of Life of the haemodialysis patients, whereas there was no significant change found in the control group. Continuous muscle stretching exercise will promote the quality of Life of the haemodialysis patients and help to maintain their optimum wellbeing.

Key words: Effectiveness, Haemodialysis, Muscles stretching exercises, Quality of life.

INTRODUCTION

Patients who have dialysis for survival live with a great deal of uncertainty about the future. They do not deal only with treatment-related complications such as left ventricular hypertrophy, arthrosclerosis and hyperparathyroidism, but also with the changes in their perception of their own self-worth.[1.2]

The present objectives for treatment of end-stage renal disease [ESRD] are 2-fold: in the first place to increase patient survival and in the second place to improve the quality of life of that survival. In order to improve the quality of life, it is essential to properly control the symptoms and complications of ESRD and work towards the full rehabilitation of the renal patient.[3]

Regarding patients either in hemodialysis [HD] or continuous ambulatory peritoneal dialysis [CAPD/PD] treatment modalities, the QOL differences reported in the relevant literature, are inconclusive.[4] Their physical activity level, functional capacity and health related quality of life[HRQoL] are extremely low compared to healthy individuals.[5]

Recent studies have shown the necessity and value of strengthening exercises in training practice for HD patients, since their exercise capacity is mainly limited due to leg fatigue.[6] Currently, in clinical practice simple physical

performance tests have been developed or the reliable and objective assessment of patients' physical functioning, indicating the individual' s ability to perform activities required in their daily living.[7]

OBJECTIVE

1.To find the magnitude of Quality of Life among patients undergoing haemodialysis.
2.To determine the effectiveness of structured muscles stretching exercise program on Quality of Life among patients undergoing haemodialysis.

MATERIALS AND METHODS

A Quantitative research approach with Times Series Research design was used for the study to assess the effectiveness of muscle stretching exercise on Quality of Life of the haemodialysis patients. The study was conducted in Dialysis unit of selected Multi speciality Hospital. Eighty six patients undergoing haemo-dialysis were conveniently selected from the population. The haemo-dialysis patients those are critically ill and debilitated, history of orthopaedic Problem, history of Psychological Problem, taking medicine like dopamine receptor agonists, Benzodiazepines, opioids and anticonvulsants were excluded from the study. The Quality of life questionnaire was used measure the magnitude of the Quality of Life. Ethical committee and administrative permission was taken from the concerning authority. Informed consent was obtained from the study participants before commencement of the study.

RESULTS

Table no: 1 depicts that in experimental group approximately half (55.8%) of the study participants were in the age group of 41-60 years. Every second (51.1 %) of the study participants were male and approximately two third (65.1 %) of the study participants belong to joint family. Half (53.4%) of had below secondary education and most (90.6%) of the study participants were married and 60.4% of study participants were working. Every second (53.4%) study participants having the family income less than 10,000 per month in experimental group, and most (90.6%) were from upper class. Majority (93%) of the study participants were Hindu in religion. Least (4.65%) of the study participants having history of smoking. Majority (60.4%) of the study participants were three time dialysis in a week. Almost half (46.5%) had less than 3 years of haemodialysis.

In control group approximately two third (72.09%) of the study participants were aged between 41-60 years and least (9.3%) of study participants was aged above 60 years. Half (53.4%) of the study participants were male. Every second (51.1%) were belonging to joint family. More than half (53.4%) of the study participants had above secondary education. Majority (95.3%) of the study participants were married and (60.4%) were having the family income less than 10,000 per month in control group. Half (51.1%) of the study participants were from upper class. Most (93%) of the study participants were Hindu. Least (4.65%) of the study participants having history of smoking and Two third (72%) of the study participants were three time dialysis in a week. Half (51.1%) of the study participants had less then 3years of haemodialysis.

Homogeneity tested of the study participants between demographic variables of control and experimental group. Since all data were categorical in nature, chi squire test was performed to study the significant association. The result showed that there was no significant difference between control and experimental group in terms of age(0.9), gender (0.4), type of family (0.1), education (0.3), marital status(0.3), monthly income of the family(0.1), Socioeconomic status (0.3), Religion(0.9), Personal habits(0.064), Number of dialysis in a week (0.7), Duration of haemodialysis(0.6). Only one variables Occupation (0.04) were significantly different at the significant level of $p<0.005$. Hence it could be interpreted that control and experimental group were homogeneous in relation to their socio-demographic characteristic.

Table no 1: Frequency (f) and percentage (%) distribution of RLS patients according to their selected personal variables N=86

S.no	Sample Characteristics	Experimental (n=43)	Control (n=43)	χ^2	P value
1.	**Age**	Frequency	Frequency		
.	18-40	8(18.6%)	8(18.6%)	14.2	0.9
	41-60	24(55.8%)	31(72.09%)		
	Above 60	11(25.5%)	4(9.3%)		
2.	**Gender**				
	Male	22(51.1%)	20(46.5%)	17.7	0.4
	Female	21(48.8%)	23(53.4%)		
3.	**Types of family**				0.1
	Joint family	28(65.1%)	21(48.8%)	23.8	
	Nuclear family	15(34.88)	22(51.1%)		
4.	**Education**				
	Above secondary	12(27.9%)	23(53.4%)	16	0.3
	Below secondary	31(79.06%)	20(46.5%)		
5.	**Marital status**				
	Married	39(90.6%)	41(95.34%)	37.6	0.3
	Unmarried	4(9.3%)	2(4.6%)		
6.	**Occupation**				
	Working	26(60.4%)	24(55.8%)	24.3	0.003
	Not working	17(39.5%)	19(44.1%)		
7.	**Monthly income of family**				
	Below 10,000	23(53.4%)	26(60.4%)		
	Above 10,000	20(46.5%)	17(39.5%)	23.3	0.1
8.	**Socioeconomic**				
	Status	39(90.6%)	21(48.8%)		
	Upper	4(9.3%)	22(51.1%)	5.1	0.3
	Lower				
9.	**Religion**				
	Hindu	40(93.0%)	40(93.0%)		
	Muslim	2(4.65%)	2(4.65%)	17.9	0.9
	Sikh	1(2.32%)	1(2.32%)		
10.	**Personal habits**				
	Smoking	2(4.65%)	2(4.65%)		
	Nothing	41(95.3%)	41(93.02%)	9.6	0.064
11.	**Number of dialysis**				
	in a week				
	One	2(4.65%)	1(2.32%)		
	Two	12(27.9%)	10(23.25%)	7.7	0.7
	Three	26(60.4%)	31(72.0%)		
	Four	3(6.9%)	1(2.32%)		
12.	**Duration of Haemodialysis**				
	Less than 3 year	20(46.5%)	22(51.1%)		
	3-5 year	17(39.5%)	17(39.5%)	8.6	0.6
	5-7 year	3(6.9%)	3(6.9%)		
	More than 7 year	3(6.9%)	1(2.32%)		

Table: 2 Magnitude of Quality of life among dialysis patient

S.no	Quality of life score	Score level	Frequency (%)
1.	0-1.5	Not at all	3(3.48%)
2.	1.6-2.5	A little some	8(9.3%)
3.	2.6-3.5	Quite	**71(82.5%)**
4.	3.6-4.5	A bit	2(2.32%)
5.	4.6-5.0	A Lot	2(2.32%)

Table 2 showed that majority 82.5% of the haemodialysis patients were reported that their quality of life been decrease to 'Quite' and 2.32% of the haemodialysis patients were reported that quality of life been decrease to 'A Lot'.

Table 3.1Effectiveness of muscle stretching exercise program on Quality of life of haemodialysis patients in experimental group

S.No	Level	Mean ±SD	F value	P value
1.	Baseline	0.59 ±0.138	91.624	.001
2.	1st Observation	0.39 ± 0.084		
3.	2st Observation	0.34 ± 0.056		

The data presented in table 3.1 showed that in baseline the Quality of Life mean score was 0.59 and after a week of muscle stretching exercise in the mean score was reduced to 0.39. After another one week intervention mean score

was reduced to 0.34. F value is 91.6 and p value is significant at the level of 0.05. It can be interpreted there was a significant mean difference between the baseline score, first observation and second observation.

Table no-3.2 Effectiveness of muscle stretching exercise program on Quality of life of haemodialysis patients in control group

S.No	Level	Mean ± SD	F value	P value
1.1.	B Baseline	0.60 ± 0.827	0.512	0.54
2.2.	First Observation	0.60± 0.073		
3.3.	Second Observation	0.61 ± 0.083		

The data presented in table-3.2showed that in baseline the Quality of Life mean score was 0.60 and in control group no intervention is given after a week the mean score was 0.60.in second observation mean score was 0.61. F value is 0.512 and p value is not significant. It can be interpreted there was no significant mean difference between the baseline score, first observation and second observation.

Table :4 Association between quality of life score with personal profile of the study participants

S.No	Characteristics	Mean±SD	Df	T value	P value
1.	**Gender** Male Female	 29.85±5.9 29.95±5.5	84	0.07	0.9*
2.	**Type of family** Joint family Nuclear family	 30.9±6.1 28.5±4.8	84	1.9	**0.05***
3.	**Education** Above secondary Below secondary	 29.1±6.6 30.9±3.9	84	1.3	0.1*
4	**Marital status** Married Unmarried	 29.7±5.6 31.6±6.6	84	0.7	0.4*
5	**Occupation** Working Not working	 30.9±6.1 28.9±5.1	84	1.6	0.1*
6	**Income** Below 10,000 Above 10.000	 31.3±9.3 29.5±4.2	84	1.2	0.2*
7	**Personal habits** Smoking Nothing	 27±10.6 30±5.4	84	0.3	1.04*
8	**Age** 18-40 41-60 Above 60	 28.4±7.29 29.2±6.46 29.2±6.4	83	1.24	0.2**
9	**Religion** Hindu Muslim Sikh	 29.6±5.8 29.5±3.5 32.5±3.5	83	0.2	0.8**
10	**No. of dialysis in a week** One Two Three Four	 28.6±3.5 30.5±5.9 29.9±5.3 26±10.8	82	0.7	0.5**
11	**Duration of dialysis** Less then 3yrs 3-5yrs 5-7yrs More then 7yrs	 30±4.4 30.7±5.9 27.5±9.6 24.7±7.9	82	1.7	0.1**

*(*independent t-test ,**one way anova)*

The data presented in table: 4 showed that there was no significant association between the pre –test Quality of life score with personal profile variables like –gender, age, Income, education, marital status, occupation, personalhabits, Religion, Number of dialysis in a week, duration of dialysis except with Type of family.

DISCUSSION

Majority of Dialysis patients were reported the RLS "quietly ''affected the quality of life of dialysis patients. Majority of the dialysis patients were a bit affected quality of life. Moreno F, Lopez Gomez J M, Sanz-Guajardo D, Jofre R, Valderrabano, F.(1996) found that twenty-six per cent of the patients showed severe quality of life restriction.[8]

The main outcome of the study depicts that quality of Life mean score significantly decreases (lessen the mean score higher the quality of life) from the baseline score to first observation to second observation. These study findings were consistent with study done by Van Vilsteren et al showed the beneficial effects of cycling during dialysis together with a pre-dialysis strength training program on behavioral changes, physical fitness, physiological conditions, and health-related QOL.[6]

Significant differences were seen between the test group and controls in eight dimensions: physical function; physical role limitations; general health; energy/fatigue; sleep; quality of social interaction; symptom/problem list (all $P < 0.05$); dialysis staff encouragement and patient satisfaction (both $P < 0.01$).[9]

CONCLUSION

The implementation of muscle stretching exercise program on Haemo dialysis patients has a positive effect on their quality of Life. The importance of muscle stretching exercise must be sensitized to all the Haemo dialysis patients.

STRENGTH

- Study has the control group.
- Random assignment of sample was done for both experimental and control group.
- Homogeneity of the groups was maintained.
- The researcher has measured RLS Symptoms at different interval to assess the effectiveness of exercise.

LIMITATIONS:-

- Random selection of samples.
- The study was conducted with a small sample size, which restricts the generalization.
- The study was conducted in one hospital setting only.

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