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A quasi-experimental study to assess the effectiveness of intradialytic aerobic exercises on muscle cramps among patients undergoing haemodialysis in selected hospitals of Pune City

Ms. Anamika Shrivastava
M. SC Nursing Bharti Vidyapeeth (Deemed to be University), College of Nursing, Pune

Dr (Mrs.) Veena Sakhardande
Assistant Professor, M. Sc. (N), PhD Nursing, Bharti Vidyapeeth (Deemed to be University), College of nursing, Pune-43

***Abstract*---**Chronic kidney disease is one of the major non-infectious diseases. Patient with chronic kidney disease mainly requires hemodialysis. Hemodialysis may cause various complications, so the hemodialysis patient requires appropriate care. Aim of the study: Assess the effectiveness of Intradialytic aerobic exercises on muscle cramps among patients Undergoing Hemodialysis. Material and method: The research design adopted for the study was quasi-experimental. 60 patients with chronic kidney disease undergoing hemodialysis were selected by purposive sampling technique. Demographic variables and Muscle cramps scores were assessed among all the patients undergoing hemodialysis. The experimental group received intervention as intradialytic aerobic exercise, and again muscle cramps score was assessed and analyzed. Result: finding of the study, about demographic variables, the majority of the patients were from 35-55 years of age and were graduated. Maximum patients have been diagnosed between 1-3 years and undergone hemodialysis twice a week. Effectiveness was analysed by paired t-test and found Intradialytic aerobic exercises are effective on muscle cramps among patients Undergoing Hemodialysis. There was no association between muscle cramps and demographic variables. Conclusion: The study concluded that intradialytic aerobic exercises effectively reduced muscle cramps in patients undergoing hemodialysis.

***Keywords*---**Chronic kidney disease, Hemodialysis, Intradialytic aerobic exercises, Muscle cramps Management.

Introduction

Chronic kidney disease has a huge prevalence, which is almost 10-13% of the population. Chronic kidney disease is irreversible and progressive. Treatment can be conventional or substitutional therapy such as haemodialysis, peritoneal dialysis, and kidney transplantation. [5]

Patients undergoing haemodialysis are very prone to have sudden painful, uncontrolled contractions of skeletal muscle, commonly known as muscle cramps occur often in haemodialysis patients. Muscle cramps can involve legs, mainly feet, but can also involve arms, hands and abdominal muscles.[8] Currently, about 12.4 million people are alive on dialysis globally. [11] It is not distinct that theadvantageous result of exercises is restricted to the above area. This study is aimed to investigate thebeneficial effects of exercise during haemodialysis.

Material and Methods

In the present study, the researcher adopted a Quantitative approach & quasi-experimental design. It was carried out on 60 dialysis patients. The purposive sampling technique was used, and data were collected using the modified Ashworth scale. Tool validity was done by method content validity. Reliability was done by using the inter-rater method. It was calculated by COHEN'S KAPPA method showing r=0.8 so the tool was reliable. A pilot study was done on 10 haemodialysis patients. As the investigator was able to conduct the study, the study was found feasible. The average time taken by each sample was 15-30 minutes. Data analysis was done mainly using descriptive statistics.

Result

The result was discussed in five sections. Section-I was regarding the analysis of data related to demographic variables of the experimental and control group. Section II includes findings related to muscle cramps among patients undergoing haemodialysis in the experimental group before and after intradialytic aerobic exercises and in the control group before and after. Section III includes findings related to the comparison between the experimental group & control group. Section-IV includes findings related to the effectiveness of intradialytic aerobic exercises on muscle cramps among patients undergoing haemodialysis in the experimental group. Section V includes Findings related to the association between muscle cramps score and selected demographic variables of both groups.

Section I: Demographic Data
Section I describe the patients undergoing haemodialysis based on their demographic characteristics in the experimental group and control group. In the experimental group, most patients (43.3%) were from the 35-55 years group or middle adults. Maximum (73.3%) patients were male. Among all the patients undergoing haemodialysis majority (46.6%) graduated. Maximum (53.3%) patients had been diagnosedbetween 1-3 years. Among all the dialysis patients maximum, (90%) of patients undergo haemodialysis twice a week. In the control group, the majority of patients (60%) were from the 35-55 years group or middle adults. Maximum (60%) patients were male. Among all the patients undergoing

haemodialysis majority (40%) graduated. Maximum (66.6%) patient has been diagnosed between 1-3 years. Among all the dialysis patient's maximum (of 80%) patients undergo haemodialysis twice a week.

Section: II Muscle cramps among patients undergoing haemodialysis in the experimental group before and after intradialytic aerobic exercises and in the control group before and after. Section II depicts the muscle cramps score of patients undergoing haemodialysis based on three observations in the experimental group before and after the intervention. In the first observation, before the intervention, maximum patients 16 (53.3%) experienced moderate muscle cramps and after intervention maximum of 22 (73.3%) patients were experienced mild muscle cramps. In the second observation, before intervention maximum of 19 (63%.3%) and after intervention maximum of 26 (86.6%) were experienced mild muscle cramps. In the third observation, before the intervention, a maximum of patients 24 (80%) experienced mild muscle cramps and after intervention 25 (83%) were experienced mild whereas 5 (16.6%) were experienced no muscle cramps. The muscle cramps of patients undergoing haemodialysis were based on three observations in the control group before and after. In the first, second and third observations maximum patients (56.6% - 60%) experienced mild muscle cramps before and (40% - 43.3%) were experienced moderate muscle cramps.

Section-III: Findings related to comparison between experimental group & control group

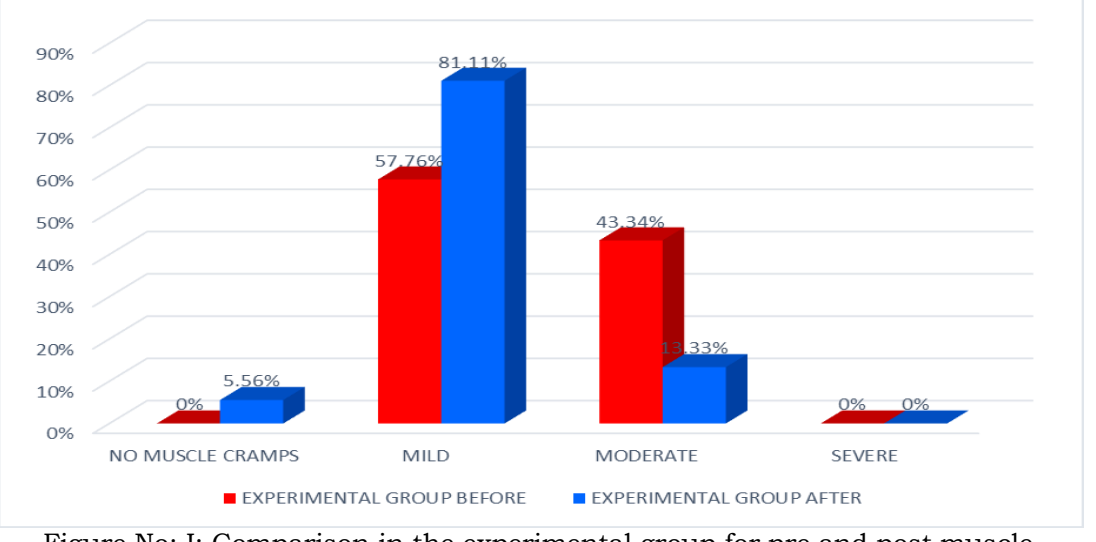

Figure No: I: Comparison in the experimental group for pre and post muscle cramps score in threeobservations

The data presented in above Figure No. 01 describes that experimental group, before intervention maximum patients undergoing haemodialysis were experienced mild (57.76%) to moderate (43.34%) muscle cramps and after the intervention, mild (81.11%) to no (5.56%) muscle cramps.

Section-IV: Findings related to the effectiveness of intradialytic aerobic exercises on muscle cramps among patients undergoing haemodialysis in the experimental group

Table No: I Effectiveness of intradialytic aerobic exercises on muscle cramps among patients undergoing haemodialysis in experimental group
N=30

		N	MEAN	SD	t-value	p-value	REMARKS
EXPERIMENTAL GROUP	Premuscle cramps	30	15.23	4.97	10.1735	<0.0001	STATICALLY SIGNIFICANT
	Postmuscle cramps	30	11.60	4.04			

Table No: I represent the effectiveness of intradialytic aerobic exercises on muscle cramps among patients undergoing haemodialysis in the experimental group was analysed by paired test. The value oft was 10.1735. The p-value was < 0.0001. So, the result was significant at a p <0.05 level.

Section-V: Findings related to the association between muscle cramps score and selected demographic variables of both groups

Section V describe an association between demographic variables and muscle cramp score in the experimental group and control group which was calculated by chi-square test. All the calculated values are less than the tabulated value at the level of 0.05. So, there was no significant association between demographic variables and muscle cramps in experimental and control groups.

Discussion

This finding of the study is supported by a similar study. A pre-test and post-test design were used in the study. 60 samples of patients undergoing haemodialysis were taken 30 were allocated in the interventional group and 30 were allocated in the control group. The effectiveness of intradialytic stretching exercise on muscle cramps, the mean average of pre-test and post-test were 6.49 and 3.04. So, the intradialytic stretching exercise was effective to reduce muscle cramps.[29.] The study reveals that intradialytic aerobic exercise can be used as an effective method for reducing muscle cramps during haemodialysis.

Conclusion

Based on the findings of the study, it can be concluded that the muscle cramps were reduced among patients undergoing haemodialysis. Hence, intradialytic aerobic exercise is found effective in reducing muscle cramps among patients undergoing haemodialysis. Reduction of muscle cramps among patients undergoing haemodialysis by doing intradialytic aerobic exercise has significantly lowered the muscle cramps score. Thus, this contributes to better dialysis care and lessens the problems faced by patients undergoing haemodialysis.

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