

“Effectiveness of intra-dialytic stretching exercise on muscle cramps among patients undergoing hemodialysis in selected hospital, Udaipur, Rajasthan”.

Mr.Griffin Bharti^{*}, Mr. Aakash Chavda^{**}

(*Medical Surgical Nursing Department,Geetanjali college of Nursing/Geetanjali University,India)

(**H.O.D Medical Surgical Nursing ,Geetanjali college of nursing/Geetanjali university,India)

Abstract:

Background: Renal failure is an important non-communicable disease that affects world population including India. The prevalence of end stage renal disease is rising throughout the developed and developing countries. Chronic renal failure is life threatening chronic kidney disease. It is a condition characterized by a decline in glomerular filtration, perturbation of extra cellular fluid volume, electrolyte and acid base homeostasis and retention of nitrogenous waste from protein catabolism. Chronic renal failure results from partial or total loss of renal function. Dialysis is one of the main replacement therapies in patients with renal failure. It removes many of the toxins responsible for the uremic syndrome and prolongs survival but having complications such as muscle cramps, fatigue, hypotension. The beginning and ending supportive therapy for the kidney failure is hemodialysis. Researcher conducted a study to assess the effectiveness of intradialytic stretching exercise on muscle cramps among patients undergoing hemodialysis in selected hospital, Udaipur, Rajasthan.

Materials and methods: It included the Quantitative experimental research approach, non-randomized control group design, variables under study were intra-dialytic stretching exercise (nursing intervention) as independent variable, muscle cramps among hemodialysis patients as dependent variable. Researcher used conceptual framework based on Imogene King's Goal Attainment Theory (1981). Selected hospitals of Udaipur city as research setting, total 60 samples, and purposive sampling techniques was used. The nursing intervention was used for this study and tool used for data collection were socio-demographic data and modified ashworth scale. The data obtained were analyzed and interpreted in the light of objectives and hypothesis using both descriptive and inferential statistical in terms of frequency, percentage and chi-square.

Results: Result revealed that calculated t value (8) is found highly significant at the level of $P=0.05$, it shows that there is a significant difference between pre-test and post-test muscle cramps score among hemodialysis patients in experimental group. Hence research hypothesis H_1 is proved and accepted. In experimental Group, the socio-demographic variables such as gender ($\chi^2=3.90$), educational status ($\chi^2 = 9.51$), habitat ($\chi^2= 6.01$), duration of dialysis therapy ($\chi^2 = 6.50$) found significant ($P=0.05$) where as, In control Group , educational status ($\chi^2=9.56$), habitat ($\chi^2=6.09$), duration of dialysis therapy ($\chi^2=6.58$), found significant ($P=0.05$). Hence Research hypothesis H_2 is accepted.

Conclusion: The main focus of the study was to assess the effectiveness of intradialytic stretching exercise on muscle cramps among patients undergoing hemodialysis. The reduction of muscle cramps among experimental group the mean was 6.5 to 0.8, SD was 2.2 to 2, mean % was 54% to 7%.The mean difference % was 47. The “t” value of 8 was significantly higher than the table value 2.05 at 0.05 level while in control group mean was 7.2 to 7.4, SD was 2.2 to 2.1, mean % was 60% to 61.9%.The mean difference % was 1.9. The finding shows that nursing intervention was effective on reducing the muscle cramps among hemodialysis patients. Hence, research hypothesis H_2 accepted.

Keywords: Intra-dialytic stretching exercise, Hemodialysis , Muscle cramps, effectiveness.

Date of Submission: 13-07-2020

Date of Acceptance: 28-07-2020

I. Introduction

Kidneys - the vital organ plays a main role in the maintenance of homeostasis mechanism in human body.¹ Healthy kidneys are the sophisticated reprocessing machine that cleans the blood by removing fluid, salt and wastes from the body. Deficit in blood supply to the kidney will lead to decreased function. Prolonged decrease in the blood supply or in the blood pressure will lead to acute or sudden kidney failure.² Chronic renal failure is life threatening chronic kidney disease. It is a condition characterized by a decline in glomerular filtration, perturbation of extra cellular fluid volume, electrolyte and acid base homeostasis and retention of nitrogenous waste from protein catabolism. Chronic renal failure results from partial or total loss of renal

function. It exist when the residual renal function less than 15% of normal. Renal failure can be treated by dialysis.³

According to American Society of Nephrology (2015), review of discharge data on a projected total of 29,039,599 hospitalizations identified 558,032 cases of ARF, with a frequency of 2^{per} 1000 hospitalization. According to WHO (2012), global burden of CRF is approximately 11,010,107 and 850,000 deaths per year. Dialysis is one of the main replacement therapies in patients with renal failure. It removes many of the toxins responsible for the uremic syndrome and prolongs survival. However, dialysis treatment doesn't fully cure the uremia. During Dialysis many complications may occur like tiredness, fatigue, hypotension and muscle cramps.⁴

Holley, stated that muscle cramps (sudden involuntary muscle contraction associated with severe pain) occur frequently in patients receiving dialysis. Muscle cramps can involve the legs, most commonly in the feet, but can also involve arms and hands, as well as abdominal muscles. It is estimated that 33% to 86% of patients receiving hemodialysis have experienced muscle cramps.⁵

Several studies showed that exercise during hemodialysis is safe, easy and shows significant changes in physical and psychological conditions, which positively influencing their social life. During hemodialysis session, patients spend 3 to 4 hours connected to dialysis machine without doing any activity. They come to dialysis 3 times a week thinking only of the length of the procedure and how bored they will be. Also, they think of the complications and the effect of dialysis. So, incorporating exercise in the dialysis not only showing physical improvement. But also has a positive psychological effect. The most used non pharmacological therapies are stretching exercise, strengthening exercise.⁶

II. Material and Methods

Quantitative experimental approach was used for the present study. This approach would help the researcher to evaluate the effectiveness of intradialytic stretching exercise on muscle cramps among patients undergoing hemodialysis at selected hospital, Udaipur in Rajasthan.

Research design : Quasi experimental, non-randomized control group design.

Research Settings: The study was conducted in the dialysis unit of Ananta institute of medical science and Pacific institute of medical science hospital Udaipur, Rajasthan.

Study duration: March 2020 to April 2020.

Sample Size: 60 hemodialysis patients.

Population: The target Accessible population includes patients undergoing hemodialysis with muscle cramps at selected hospital Udaipur Rajasthan. In this present study the sample consisted of 60 hemodialysis patients, 30 each in the experimental group and control group.

Sampling Technique: Purposive sampling technique.

Inclusion criteria:

- ❖ Patients with age group 20-60 years.
- ❖ Both male and female hemodialysis patients.
- ❖ Patients who are willing to participate.
- ❖ Patients suffering from acute renal failure and chronic renal failure.
- ❖ Patients who are able to understand Hindi and English.

Exclusion criteria:

- ❖ Emergency hemodialysis patients.
- ❖ Patients with femoral catheters.
- ❖ Patient with any lower limb pathology.
- ❖ Patients with ventilator support.

Procedure Methodology: The researcher adopted a quantitative experimental research approach with quasi experimental, non-randomized control group design. Sixty participants were selected, by using purposive sampling technique. Pre-test was done with modified ashworth scale. The average time taken by each participants was 20 minutes. Based on pre-test score the nursing intervention was administered by the researcher to the participants. The post-test was conducted immediately after the nursing intervention. The collected data were analyzed based on the above mentioned objective using the descriptive and inferential statistics.

Statistical analysis: The obtained data were analyzed in terms of objectives of the study using descriptive and inferential statistics. The plan for data analysis was organization of data in master sheet. Obtained data were analyzed in terms of frequencies and percentages. Description Statistics: Description of demographic characteristics mean, median, SD and mean percentage is used to describe the pre-test & post-test in

experimental and control group of the participant regarding muscle cramps during hemodialysis. Inferential Statistics: ‘t’ test is used to find out the effectiveness of intra-dialytic stretching exercise on the muscle cramps among hemodialysis patients. Chi-square is used to find the Association between pre- test muscle cramps score of experimental group & control group participant with socio-demographic variables.

III. Results

Section A: Level of muscle cramps among hemodialysis patients in experimental & control group.

Section B: Effectiveness of intra-dialytic stretching exercise on muscle cramps among hemodialysis patients in experimental & control group.

Section C: Association between pre-test level of muscle cramps among patients undergoing hemodialysis with their selected socio-demographic variables in experimental and control group.

Section-A: Level of muscle cramps among hemodialysis patients in experimental & control group.

Table 1: Level of muscle cramps in Experimental Group. N=30

Test	Muscle Cramps	Frequency	Percentage
Pre-test	Mild	0	0
	Moderate	9	30
	Severe	21	70
Post-test	Mild	15	50
	Moderate	15	50
	Severe	0	0

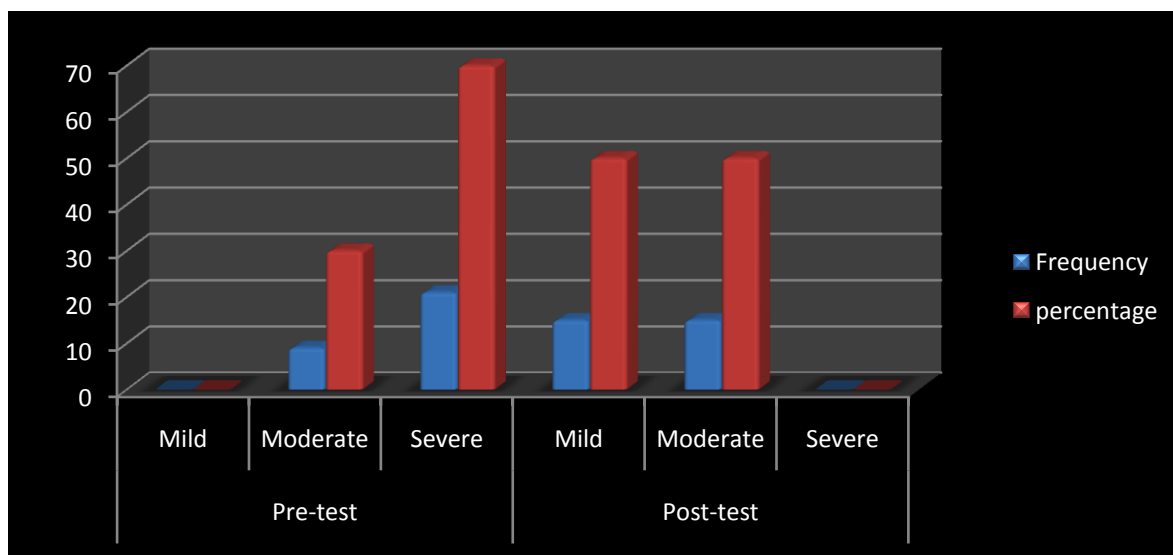


Figure1: Level of muscle cramps in Experimental Group.

Table 1 and Figure 1: depicted the pre-test and post-test level of muscle cramps among hemodialysis patients in experimental group. The result showed that in pre-test none of the respondents had mild muscle cramps whereas 30% had moderate muscle cramps, and 70% had severe muscle cramps while in post-test 50% had mild muscle cramps whereas 50% had moderate muscle cramps, and none of the respondents had severe muscle cramps regarding intervention of intra-dialytic stretching exercise among hemodialysis patients.

Table 2: Level of muscle cramps in Control Group

N=30

Test	Muscle cramps	Frequency	Percentage
Pre-test	Mild	0	0
	Moderate	6	20
	Severe	24	80
Post-test	Mild	0	0
	Moderate	7	23.33
	Severe	23	76.67

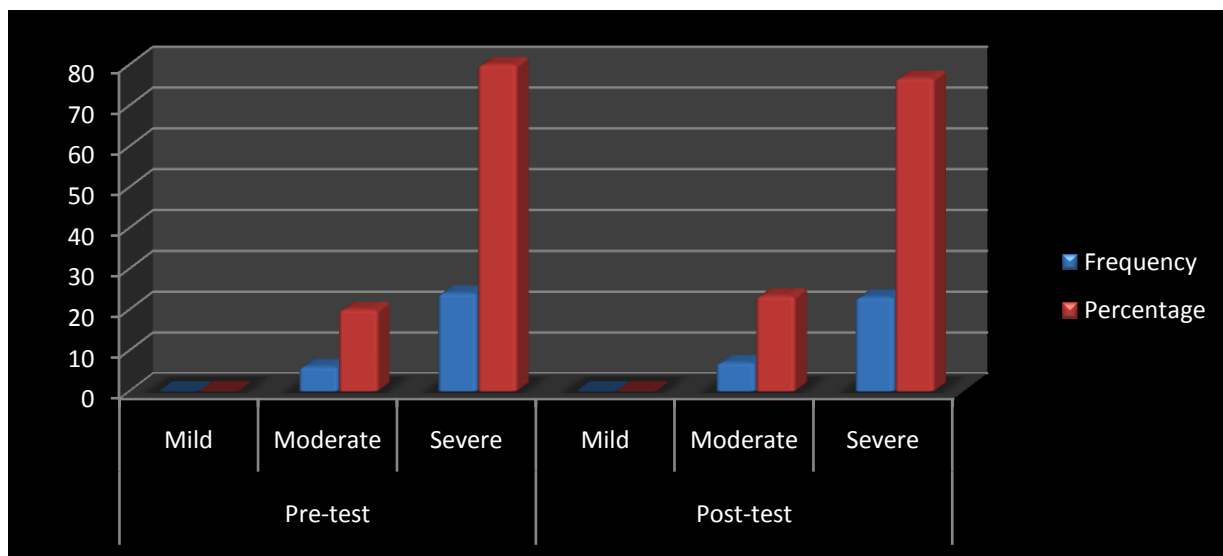


Figure 2: Level of muscle cramps in control group

Table 2 & Figure 2: depicted the pre-test and post-test level of muscle cramps among hemodialysis patients in control group. The result showed that in pre-test none of the respondents had mild muscle cramps whereas 20% had moderate muscle cramps, and 80% had severe muscle cramps while in post-test 76.67% had severe muscle cramps whereas 23.33% had moderate muscle cramps, and none of the respondents had mild muscle cramps among hemodialysis patients.

Section B: Effectiveness of intra-dialytic stretching exercise on muscle cramps among hemodialysis patients in experimental & control group.

Table:3 Comparison of pre-test and post-test of muscle cramps among patients undergoing hemodialysis in experimental group.

N=30

Tests	Experimental Group							Inference (P Value= 0.05)
	Mean	Mean %	SD	Mean Difference	Mean Difference%	df	t-test	
Pre-test	6.5	54	2.2	5.7	47%	29	8	S
Post-test	0.8	7	2					

S=Significant

Table 3: revealed that the reduction of muscle cramps from pre-test to post-test the mean was 6.5 to 0.8, SD was 2.2 to 2, mean % was 54% to 7%.The mean difference % was 47. The data further represent that the, “t” value of 8 was significantly higher than the table value 2.05 at 0.05 level. This indicates that there was difference in pre-test and post-test muscle cramps score of respondents and the intra-dialytic stretching exercise was effective in reducing the muscle cramps score among hemodialysis patients.

Table 4: Comparison of pre-test and post-test of muscle cramps among patients undergoing hemodialysis in control group.

N=30

Tests	Control Group							Inference (P Value= 0.05)
	Mean	Mean %	SD	Mean Difference	Mean Difference%	df	t-test	
Pre-test	6.5	54	2.2	5.7	47%	29	8	S
Post-test	0.8	7	2					

Pre-test	7.2	60	2.2	0.2	1.9%	29	1.75	NS
Post-test	7.4	61.9	2.1					

NS=Not Significant

Table 4: revealed that the score of muscle cramps from pre-test to post-test the mean was 7.2 to 7.4, SD was 2.2 to 2.1, mean % was 60% to 61.9%.The mean difference % was 1.9. The data further represent that the, “t” value of 1.75 was not significantly higher than the table value 2.05 at 0.05 level. This indicates that the pre-test and post-test muscle cramps score of respondents was not significant among hemodialysis patients.

H₁ : There was a significant difference between the pre-test and post-test muscle cramps score among hemodialysis patients in experimental and control group. The hypothesis was tested at 0.05 levels. In experimental group, the calculated “t” value 8, was significantly higher than the table value 2.05 at 0.05 level. This indicates that there was significant difference between pre-test and post-test muscle cramps score among hemodialysis patients in experimental group. Hence, the research hypothesis **H₁** is proved and accepted.

Section C: Association between pre-test level of muscle cramps among patients undergoing hemodialysis with their selected socio-demographic variables in experimental and control group.

1: Association between pre-test level of muscle cramps with selected socio-demographic variables in experimental group.

Table 5: Association between pre-test muscle cramps score of respondents with age in years.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
1. Age in Years							
21-30	5	0	5	3	0.64	7.82	N.S
31-40	7	3	10				
41-50	7	8	15				
51 & above	0	0	0				
Total	19	11	30				

N.S=Not Significant

Table-5 shown the obtained, χ^2 value of age in years i.e. 0.64, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with age in years at df of 3 ($p < 0.05$ level).

Table 6: Association between pre-test muscle cramps score of respondents with gender.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
2.Gender							
Male	15	5	20	1	3.90	3.84	S
Female	10	0	10				
Total	25	5	30				

S= Significant

Table-6 revealed that in experimental group the obtained χ^2 value of gender i.e. 3.90, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with gender at df of 1 ($p < 0.05$ level).

Table 7: Association between pre-test muscle cramps score of respondents with educational status.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
3.Educational status							
Non-formal	7	8	15	4	9.51	9.49	S
Primary	7	3	10				
Secondary	5	0	5				
Higher Secondary	0	0	0				
Graduate or above	0	0	0				
Total	19	11	30				

S= Significant

Table-7 showed that in experimental group the obtained χ^2 value of educational status i.e. 9.51, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with educational status at df of 4 ($p < 0.05$ level).

Table 8: Association between pre-test muscle cramps score of respondents with habitat.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
4.Habitat							
Urban	10	0	10	2	6.01	5.99	S
Semi-urban	15	5	20				
Rural	0	0	0				
Total	25	5	30				

S= Significant

Table-8 revealed that in experimental group the obtained χ^2 value of habitat i.e. 6.01, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with habitat at df of 2 ($p < 0.05$ level).

Table 9: Association between pre-test muscle cramps score of respondents with duration of illness.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
5.Duration of illness							
Less than 1 year	10	0	10	2	1.73	5.99	N.S
2-5 year	15	5	20				
More than 5 year	0	0	0				
Total	25	5	30				

NS=Not Significant

Table-9 showed that in experimental group the obtained χ^2 value of duration of illness i.e. 1.73, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with duration of illness at df of 2 ($p < 0.05$ level).

Table 10: Association between pre-test muscle cramps score of respondents with duration of dialysis.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
6.Duration of dialysis therapy							
Less than 1 year	15	0	15	2	6.50	5.99	S
2-5 year	15	0	15				
More than 5 year	0	0	0				
Total	30	0	30				

S= Significant

Table-10 revealed that in experimental group the obtained χ^2 value of duration of dialysis therapy i.e. 6.50, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with duration of dialysis therapy at df of 2 ($p < 0.05$ level).

Table 11: Association between pre-test muscle cramps score of respondents with source of information regarding renal failure.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
7. Source of information regarding renal failure							
Peer group	10	0	10	2	1.64	5.99	N.S
Mass media	15	5	20				
Health personal	0	0	0				
Total	25	5	30				

N.S=Not Significant

Table-11 showed that in experimental group the obtained χ^2 value of source of information regarding renal failure i.e. 1.64, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with source of information regarding renal failure at df of 2 ($p < 0.05$ level).

2. Association between pre-test level of muscle cramps with selected socio-demographic variables in control group.

Table 12: Association between pre-test muscle cramps score of respondents with age in year.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
1. Age in Years							
21-30	5	0	5	3	0.94	7.82	N.S
31-40	7	8	15				
41-50	7	3	10				
51&above	0	0	0				
Total	19	11	30				

N.S=Not Significant

Table-12 showed that in control group, χ^2 value of age in years i.e. 0.94, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with age in years at df of 3 ($p < 0.05$ level).

Table 13: Association between pre-test muscle cramps score of respondents with gender.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
2. Gender							
Male	15	5	20	1	3.76	3.84	N.S
Female	10	0	10				
Total	25	5	30				

N.S= Not Significant

Table-13 revealed that in control group the obtained χ^2 value of gender i.e. 3.76, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with gender at df of 1 ($p < 0.05$ level).

Table 14: Association between pre-test muscle cramps score of respondents with educational status.

N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
3. Educational status							
Non-formal	7	3	10	4	9.56	9.49	S
Primary	7	8	15				
Secondary	5	0	5				
Higher Secondary	0	0	0				
Graduate or above	0	0	0				
Total	19	11	30				

S= Significant

Table-14 showed that in control group the obtained χ^2 value of educational status i.e. 9.56, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with educational status at df of 4 ($p < 0.05$ level).

Table 15: Association between pre-test muscle cramps score of respondents with habitat.
N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
4.Habitat							
Urban	15	5	20	2	6.09	5.99	S
Semi-urban	10	0	10				
Rural	0	0	0				
Total	25	5	30				

S= Significant

Table-15 revealed that in control group the obtained χ^2 value of habitat i.e. 6.09, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with habitat at df of 2 ($p < 0.05$ level).

Table 16: Association between pre-test muscle cramps score of respondents with duration of illness.
N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
5.Duration of illness							
Less than 1 year	10	0	10	2	1.66	5.99	N.S
2-5 year	15	5	20				
More than 5 year	0	0	0				
Total	25	5	30				

NS=Not Significant

Table-16 showed that in control group the obtained χ^2 value of duration of illness i.e. 1.66, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with duration of illness at df of 2 ($p < 0.05$ level).

Table 17: Association between pre-test muscle cramps score of respondents with duration of dialysis therapy.
N=30

Demographic Variables	Below median	Above median	Total	df	Chi square	P Value (0.05)	Inference
6.Duration of dialysis therapy							
Less than 1 year	15	0	15	2	6.58	5.99	S
2-5 year	15	0	15				
More than 5 year	0	0	0				
Total	30	0	30				

S= Significant

Table-17 revealed that in control group the obtained χ^2 value of duration of dialysis therapy i.e. 6.58, was more than the P value which indicates that there was significant association between the pre-test muscle cramps score with duration of dialysis therapy at df of 2 ($p < 0.05$ level).

Table 18: Association between pre-test muscle cramps score of respondents with source of information regarding renal failure.
N=30

Demographic Variables	Below median	Above median	Total	Df	Chi square	P Value (0.05)	Inference
7. Source of information regarding renal failure							
Peer group	10	0	10	2	1.62	5.99	N.S
Mass media	15	5	20				
Health personal	0	0	0				
Total	25	5	30				

N.S=Not Significant

Table-18 showed that in control group the obtained χ^2 value of source of information regarding renal failure i.e. 1.62, was less than the P value which indicates that there was no significant association between the pre-test muscle cramps score with source of information regarding renal failure at df of 2 ($p < 0.05$ level).

H₂ : There is a significant association between pre-test score of muscle cramps with selected socio-demographic variables in experimental and control group. The parametric chi-square test was carried out to determine the association between the pre-test muscle cramps score with selected socio-demographic variables such as age in years, gender, education, habitat, duration of illness, duration of dialysis therapy, and source of information regarding renal failure in both experimental and control group among hemodialysis patients.

There was a significant association between pre-test muscle cramps score with selected socio-demographic variables. In experimental group such as gender ($\chi^2=3.90$), educational status ($\chi^2 = 9.51$), habitat ($\chi^2= 6.01$), duration of dialysis therapy ($\chi^2 = 6.50$) were significant at 0.05 level and there was no significant association between age, habitat, duration of illness, and source of information regarding renal failure at 0.05 level while in control group the socio-demographic variables such as educational status ($\chi^2=9.56$), habitat ($\chi^2=6.09$), duration of dialysis therapy ($\chi^2=6.58$), were found to be significant at 0.05 level and there was no significant association between age, gender, duration of illness and source of information regarding renal failure at 0.05 level. Hence, research hypothesis **H₂** is accepted.

IV. Discussion

The present study has been undertaken to “Evaluate the effectiveness of intradialytic stretching exercise on muscle cramps among patients undergoing hemodialysis at selected hospitals, Udaipur ,Rajasthan”.

The finding of the study are discussed under the following heading:

Section A: To assess the level of muscle cramps among patients undergoing hemodialysis in experimental group.

The level of muscle cramps among patients undergoing hemodialysis in experimental group, result showed that in pre-test none of the respondents had mild muscle cramps whereas 30% had moderate muscle cramps, and 70% had severe muscle cramps while in post-test 50% had mild muscle cramps whereas 50% had moderate muscle cramps, and none of the respondents had severe muscle cramps regarding intervention of intra-dialytic stretching exercise among hemodialysis patients.

Section B: To assess the level of muscle cramps among patients undergoing hemodialysis in control group.

The level of muscle cramps among patients undergoing hemodialysis in control group result showed that in pre-test none of the respondents had mild muscle cramps whereas 20% had moderate muscle cramps, and 80% had severe muscle cramps while in post-test 76.67% had severe muscle cramps whereas 23.33% had moderate muscle cramps, and none of the respondents had mild muscle cramps among hemodialysis patients.

An experimental study by **Deodatta Chafekar et.al. (2017)** who conducted a study to assess the clinical profile of End stage Renal Disease in patients undergoing Haemodialysis in Vasantrao Pawar Medical College at Nasik, India. Out of 80 respondents in experimental group the result showed that in pre-test none of the respondents had mild muscle cramps, 20% had moderate muscle cramps, and 80% had severe muscle cramps while in post-test 40% had mild muscle cramps, 60% had moderate muscle cramps, and none of the respondents had severe muscle cramps regarding intervention of intra-dialytic stretching exercise among hemodialysis patients. In control group the result showed that in pre-test none of the respondents had mild muscle cramps, 30% had moderate muscle cramps, and 70% had severe muscle cramps while in post-test 80% had severe muscle cramps, 20% had moderate muscle cramps, and none of the respondents had mild muscle cramps among hemodialysis patients. The mean percentage for overall muscle cramps in experimental group was 47.81, which showed that exercise helped in reducing muscle cramps among hemodialysis patients.⁷

Section C : To assess the effectiveness of intra-dialytic stretching exercise on muscle cramps among patient undergoing hemodialysis in experimental group.

In experimental group the pre-test mean score was 6.5, and the post-test mean score was 0.8. The calculated “t” value 8, which was greater than the table value at 0.05 level. Result showed that the reduction of muscle cramps from pre-test to post-test the mean score was 6.5 to 0.8, SD was 2.2 to 2, mean% was 54% to 7%. The mean difference % was 47. The data further represent that the “t” value of 8 was significantly higher than the table value 2.05 at 0.05 level. This indicates that there was difference in pre-test and post-test muscle cramps score of respondents and the intra-dialytic stretching exercise was effective in reducing the muscle cramps score among hemodialysis patients. Hence, the research hypothesis **H₁** was proved and accepted.

Section D: To assess the effectiveness of intra-dialytic stretching exercise on Muscle Cramps among patient undergoing hemodialysis in control group.

In control group the pre-test mean score was 7.2, and the post-test mean score was 7.4. The calculated “t” value 1.75, which was less than the table value at 0.05 level. Result showed that the score of muscle cramps from pre-test to post-test the mean was 7.2 to 7.4, SD was 2.2 to 2.1, mean % was 60% to 61.9%. The mean difference % was 1.9. The data further represent that the, “t” value of 1.75 was not significantly higher than the table value 2.05 at 0.05 level. This indicates that the pre-test and post-test muscle cramps score of respondents was not significant among hemodialysis patients.

An experimental study was conducted by **Jacob DA** in year 2016 at Tamilnadu, India. The mean post-test muscle cramps score was 43 which was apparently higher than the mean pre-test score i.e. 4.96.⁸

Section E: Association between the pre-test score of muscle cramps with selected socio-demographic variables in experimental group.

The level of muscle cramps among patients undergoing hemodialysis in experimental group, result showed that in pre-test none of the respondents had mild muscle cramps whereas 30% had moderate muscle cramps, and 70% had severe muscle cramps while in post-test 50% had mild muscle cramps whereas 50% had moderate muscle cramps, and none of the respondents had severe muscle cramps regarding intervention of intra-dialytic stretching exercise among hemodialysis patients.

Section F : Association between the pre-test score of muscle cramps with selected socio-demographic variables in control group.

The level of muscle cramps among patients undergoing hemodialysis in control group result showed that in pre-test none of the respondents had mild muscle cramps whereas 20% had moderate muscle cramps, and 80% had severe muscle cramps while in post-test 76.67% had severe muscle cramps whereas 23.33% had moderate muscle cramps, and none of the respondents had mild muscle cramps among hemodialysis patients.

V. Conclusion

The study was conducted “Evaluate the effectiveness of intradialytic stretching exercise on muscle cramps among patients undergoing hemodialysis at selected hospitals, Udaipur ,Rajasthan”. In the present study 60 hemodialysis patients with muscle cramps were selected through purposive sampling technique. Researcher used Qausi-Experimental, non-randomized research design to assess the level of muscle cramps among patients undergoing hemodialysis. Data were collected modified ashworth scale and data were analysed through suitable statistical method.

References

- [1]. Rossen, Wilson. Textbook of Anatomy and physiology. 11th ed. New Delhi : Elsevier publication;2000.
- [2]. Brunner, Siddhartha. Textbook of medical surgical nursing, 10th ed. Philadelphia : Lippincott publication; 2002.
- [3]. Koudi E. The effect of exercise training on muscle atrophy in hemodialysis patients. J NepDia Tra .1998 .685-699.
- [4]. Thomas N. Textbook of Renal Nursing. 2nded. New Delhi: Mosby publication;2008.
- [5]. Holley . Muscle cramps in dialysis patients. J CANNT 2012; 25(3).
- [6]. Abbasi. The effect of intradialytic stretching exercise on severity of symptoms of RLS and quality of sleep in hemodialysis patients. J Teh med sci. 2013 9(3): 238-240.
- [7]. Deodatta Chafekar et.al. (2017) Effectiveness of Intradialytic Stretching exercise on muscle cramps and activities of Daily Living among patients subjected to haemodialysis. Journal of Science , 4 (1), 13-18.
- [8]. Isaac S, Jacob DA, asian journal of phytomedicine and clinical research, effectiveness of intradialytic stretching exercise on muscle cramps among patients undergoing hemodialysis,2017, 78 - 86.

Mr.Griffin Bharti, et. al. “Effectiveness of intra-dialytic stretching exercise on muscle cramps among patients undergoing hemodialysis in selected hospital, Udaipur, Rajasthan.” *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(4), 2020, pp. 01-10.