

## A STUDY TO ASSESS THE EFFECTIVENESS OF INTRADIALYTIC STRETCHING EXERCISES ON REDUCTION OF MUSCLE CRAMPS AMONG PATIENTS UNDERGOING HAEMODIALYSIS AT SMI HOSPITAL, DEHRADUN

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### Abstract

*Chronic kidney disease (CKD) has been increasingly recognized as a global health burden. Individuals with CKD are at risk for progressive loss of kidney function and kidney failure. One of the most common treatments for kidney failure is haemodialysis. Among the haemodialysis patients one of the most common complications is muscle cramps. Nurses play a pivotal role in muscle cramps assessment and interventional. The complementary therapies are used to relieve the muscle cramps. One of these therapies, which are used to reduce muscle cramps, is intradialytic stretching exercises. Thus we aimed “to assess the effectiveness of intradialytic stretching exercises on reduction of muscle cramps among patients undergoing haemodialysis at SMI hospital Dehradun” The nature of the study was quasi- experimental. The research design adopted for the study was “quasi- experimental non randomized control group design”. In this design total sample were collected non randomly and divided into two groups, one is interventional group and another one control group. The data was collected using the cramp questionnaire chart and analysed using descriptive and inferential statistics. The study shows that there was significant association between demographic variables and pre test score in relation with occupation among the experimental group. After pre test and post test the significant difference of muscle cramps was tested using paired ‘t’ test and the result was 14.42. Results revealed that intradialytic stretching exercises during the haemodialysis reduce the muscle cramps. This indicates that the intradialytic stretching exercises are significantly effective in reducing the muscle cramps among patients undergoing haemodialysis.*

**Keywords:** Kidney, haemodialysis, intradialytic stretching exercises, muscle cramps

### INTRODUCTION

Health is the level of functional or metabolic efficiency of a living organism. In humans, it is the general condition of a person's mind and body, usually meaning to be free from illness, injury or pain (as in "good health" or "healthy"). **The World Health Organization WHO** defined health in its broader sense in **1946** as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"

C.G. Okwuonu et al 2013 mentioned that 2010 global ranking of premature causes of death show that kidney diseases moved up from position 32 in 1990 to position 24 in 2010.

CKD, with its high prevalence, morbidity and mortality, is an important public health problem. Several issues contribute to high prevalence of CKD in India. United Nations Children's Emergency

Fund data show that 28% of children are <2.5 kg at birth. The etiology of CKD varies considerably throughout India. Parts of the states of Andhra Pradesh, Odisha, and Goa have high levels of CKD of unknown etiology (CKD), which is a chronic interstitial nephropathy with insidious onset and slow progression. Santosh Varughese and Georgi Abraham, 2018

Haemodialysis is a life saving measure for patients with chronic kidney disease. It is an ongoing process where patients experience complications such as hypotension, muscle cramps, disequilibrium syndrome and nausea during the procedure. One of the most common treatments for kidney failure is haemodialysis. Worldwide statistics shows that 9, 20,000 people are undergoing haemodialysis per day, which constitutes about 7-8% of the total population. Anna Kottgen., JurgenFloeg., Martin Busch.StephanieTitze et al., 2015

Robert A Star 2015 mentioned that the beginning and ending supportive therapy for the kidney failure is haemodialysis.

In this study the investigator is interested to elicit the effect of intradialytic stretching exercise on muscle cramps experienced by the patients during haemodialysis. Muscle Stretching is a form of physical exercise in which a specific muscle or tendon (or muscle group) is deliberately flexed or stretched in order to improve the muscle's felt elasticity and achieve comfortable muscle tone. The result is a feeling of increased muscle control, flexibility and range of motion. Stretching is also used therapeutically to alleviate muscle cramps.

#### **NEED OF THE STUDY**

Chronic kidney disease (CKD) is an important non communicable disease epidemic that affects the world population including India. **Reddy, 2007.**

Muscle cramps are a common discomfort experienced by patients undergoing haemodialysis which is characterized by a sudden, painful, involuntary contraction of a muscle which originates from the peripheral nerves. Many non pharmacologic therapies are employed by patients prior to treatment, but there is only a little evidence to support the use of non pharmacological measures ManishaJhambe, Steven D Weisbord, Jennifer L Steel, Mark Unruh, 2008.

Muscle cramps reduce quality of life, sleep and participation in activities of daily living. Many interventions are available for lower limb cramps but some are controversial and no treatment guidelines exist and often people experience no benefit from the interventions prescribed. Hence there is a need to practice some interventions for muscle cramps during haemodialysis. Intradialytic stretching exercises help to improve the efficacy of haemodialysis thus preventing or reducing the muscle cramps.

#### **STATEMENT OF THE PROBLEM**

A study to assess the effectiveness of intradialytic stretching exercises on reduction of muscle cramps among patients undergoing haemodialysis at SMI hospital, Dehradun

## HYPOTHESIS

**H<sub>1</sub>:** There is a significant difference in the level of muscle cramps after intradialytic stretching exercises among patients undergoing haemodialysis.

**H<sub>2</sub>:** There is a significant association between the levels of muscle cramps among patients undergoing haemodialysis with their selected demographic and clinical variables.

## RESEARCH METHODOLOGY

### Research approach

A Quantitative approach was considered appropriate for the present study

### Research design

Quasi Experimental Design Pre-Test Post-Test with Control Group

### Variables

#### Dependent variables:

Muscle cramps during haemodialysis

#### Independent variables:

Intradialytic stretching exercises

#### Setting of the study

Shri Mahant Indires Hospital Dehradun.

#### Population

Patient undergoing haemodialysis

#### Sample

Patients undergoing haemodialysis from selected hospital, SMIH, Dehradun.

#### Sample size

60 patients undergoing haemodialysis in selected area, SMIH, Dehradun.

#### Sampling technique

A non-probability purposive sampling technique was used for selecting samples.

## DESCRIPTION OF TOOL

### Section A:

#### Part A: Demographic Data

It contains 7 items for obtaining information which includes Age, Gender, Education, Occupation, Marital status, Accompanying with patient and Personal habits.

#### Part B: Clinical Variables

It includes duration of haemodialysis treatment, hours during haemodialysis, sittings per week, previous experiencing of cramps, and location of muscle cramps, comorbid illness

### Section B: Cramp Questionnaire Chart

The cramp questionnaire chart was used to assess the severity of muscle cramps during haemodialysis, before and after interventional. It contains various features of muscle cramps such as the frequency of muscle cramps, duration of muscle cramps, level of pain, temperature and discomfort which was comprehensively scored as level of muscle cramps ranging from (0-13).

## CONTENT VALIDITY OF RESEARCH INSTRUMENT

Content validity was done from 5 experts from specialized field and necessary corrections were made in the tool based on the suggestions obtained.

### RELIABILITY OF THE TOOL

The tool was administered on 10 subjects and the reliability of the tool was found by using Karl Pearson coefficient sample technique. The reliability of the cramp questionnaire chart was found to be 0.8 hence the tool was found to be highly reliable.

### TECHNIQUES OF DATA COLLECTION

Pre- test was done using the questionnaire and the data was collected through interview method from the patients. The muscle cramps was assessed using the cramp questionnaire chart.

#### Steps of Interventional:

Intradialytic stretching exercises comprises of

- Ankle dorsiflexion
- Gastrocnemius stretching
- Soleus stretching
- Hamstring stretching
- Quadriceps stretching
- Patients in interventional group were given intradialytic stretching exercises during the third and fourth hour of haemodialysis.
- Each session of this exercises program was for 10 minutes.
- Exercises administered until the patients complete the post test.
- After 2 times of interventional post assessment of muscle cramps was done during the fourth sitting of haemodialysis.
- Patients from the control group were not administered any interventional
- Post assessment of muscle cramps was done during the haemodialysis.

### DATA COLLECTION PROCEDURE

A formal permission letter was obtained from the medical superintendent and nursing superintendent of SMI hospital Dehradun to conduct the study. The purpose and the nature of the study were explained to the samples and their verbal informed consent was obtained to do the study. For both group the interventional group and the control group the pre- test was done on the first sitting of haemodialysis. Intradialytic stretching exercises were given during the second and third sitting of haemodialysis and then the post test was obtained using the same tool in the interventional group. In control group interventional was not given and post test was obtained.

### DATA ANALYSIS AND INTERPRETATION

The data collected were organised, tabulated, analysed and interpreted by using descriptive and inferential statistics and is described with help of tables, graphs and pie diagram

**Table 1. Frequency and Percentage distribution of Demographic Profile**

**N=60**

S. No	Demographic Data	Interventional Group		Control Group		TOTAL	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
<b>1</b>	<b>Age in Years</b>						
	< 20 Years	0	0%	0	0%	0	0%

	21- 40 Years	8	26.6%	9	30%	17	28.3%
	41- 60 Years	15	50%	14	46.7%	29	48.3%
	>60 Years	7	23.4%	7	23.3%	14	23.3%
<b>2</b>	<b>Gender</b>						
	Male	17	56.7%	15	50%	32	53.3%
	Female	13	43.3%	15	50%	28	46.7%
<b>3</b>	<b>Education</b>						
	Illiterate	6	20%	5	16.7%	11	18.3%
	Primary	2	6.7%	4	13.3%	6	10%
	Secondary	5	16.7%	4	13.3%	9	15%
	Under Graduation	9	30%	12	40%	21	35%
	Post Graduation	8	26.6%	5	16.7%	13	21.7%
<b>4</b>	<b>Occupation</b>						
	Employed	15	50%	18	60%	33	55%
	Unemployed	15	50%	12	40%	27	45%
<b>5</b>	<b>Marital Status</b>						
	Married	24	80%	25	83.3%	49	81.7%
	Un married	4	13.3%	1	3.3%	5	8.3%
	Widow/ Widower	2	6.7%	4	13.3%	6	10%
	Separate/ Divorce	0	0%	0	0%	0	0%
<b>6</b>	<b>Accompanying with patient</b>						
	Spouse	12	40%	11	36.7%	23	38.3%
	Children	10	33.3%	11	36.7%	21	35%
	In law	0	0%	0	0%	0	0%
	Others	8	26.7%	8	26.67%	16	26.7%
<b>7</b>	<b>Personal habits</b>						
	Alcoholism	0	0%	0	0%	0	0%
	Smoking	0	0%	0	0%	0	0%
	Chewing tobacco	0	0%	0	0%	0	0%
	Drugs	0	0%	0	0%	0	0%
	None	30	100%	30	100%	60	100%

**Table 1** shows the demographic data details, almost half (48.3%) were in the age group of 41- 60 years in the Interventional Group and in the Control Group 46.7% were in the age group of 41- 60 years, 56.7% were male and 43.3% were female in Interventional Group and both male and female were equal in number in Control Group i.e. 50% each. 20% were illiterate, 6.7% had Primary education, 16.7% had Secondary, 30% had Under graduation and 26.6% had Post graduation in the Interventional Group and 16.7% were illiterate, 13.3% acquired primary, 13.3% gained secondary, 40% had under graduation and 16.7% had post graduation in the Control Group. As per their occupation, it shows that 50% were employed and 50% were unemployed in the Interventional Group and 60% employed and 40% unemployed in the Control Group, majority of the participants (80%) were married, 13.3% were unmarried, 6.7% were widow/widower and 0% were in separate divorce category in the Interventional Group and 83.3% were married, 3.3% were unmarried, 13.3% were widow/ widower and 0% were in separate/ divorce category in the Control Group. 40% samples accompanied with spouse, 33.3% accompanied with children, 0% accompanied with In- law, 26.7% accompanied with others in the Interventional group and 36.7% accompanied with spouse, 36.7% accompanied with children, 0% accompanied with in laws and 26.6% accompanied with others in the Control Group. None of the participants has any habit of alcoholism, smoking, chewing tobacco, in both the groups.

**Table 2: Frequency and Percentage Distribution of Clinical variables**

**N=60**

S. No	Clinical Variables	Interventional Group		Control Group		TOTAL	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
<b>1</b>	<b>Duration of Haemodialysis Treatment</b>						
	<1 year	9	30%	4	13.3%	13	21.7%
	1-2 years	10	33.3%	14	46.7%	21	40%
	>2 years	11	36.7%	12	40%	23	38.3%
<b>2</b>	<b>Hours during haemodialysis</b>						
	3 hours	0	0	0	0%	0	0%
	4 hours	30	100%	30	100%	60	100%
	5 hours	0	0	0	0%	0	0%
	6 hours	0	0	0	0%	0	0%
<b>3</b>	<b>Sitting per week</b>						
	Once	0	0	0	0%	0	0%
	Twice	11	36.7%	8	26.7%	19	31.7%
	Thrice	19	63.3%	22	73.3%	41	68.3%
<b>4</b>	<b>Suffering from kidney disease since</b>						
	<2 years	13	43.3%	7	23.3%	20	33.3%
	2-4 years	12	40%	16	53.3%	28	46.7%
	>5 years	5	16.7%	7	23.3%	12	20%
<b>5</b>	<b>Previous experience of muscle cramps</b>						
	Yes	30	100%	30	100%	60	100%
	No	0	0	0	0	0	0%
	<b>If yes, when the muscle cramp is experienced</b>						
	Starting of haemodialysis	0	0	0	0%	0	0%
	During of haemodialysis	5	16.7%	3	10%	8	13.3%
	Ending of haemodialysis	25	83.3%	27	90%	52	86.7%
<b>6</b>	<b>Location of muscle cramp</b>						
	Calf	26	86.7%	18	60%	44	73.3%
	Hamstring	2	6.7%	5	16.7%	7	11.7%
	Soleus	2	6.7%	7	23.3%	9	15%
<b>7</b>	<b>Diagnosed with comorbid condition</b>						
	Yes	6	20%	3	10%	9	15%
	No	24	80%	27	90%	51	85%

**Table no. 2** reveals the clinical variable related information: The duration of the patients undergoing haemodialysis treatment was 30% for <1 year, 33.3% for 1-2 year, 36.7% for >2 year in Interventional group and in the Control group the findings were 13.3%, 46.7%, 40% for <1 year, 1-2 year, >2 year respectively. Distribution of the patients undergoing haemodialysis shows that in both the groups for all 60 i.e. 100% patients haemodialysis duration of hours were for 4 hours, 36.7% patients came twice and 63.3% patients came thrice for haemodialysis in the Interventional Group and there was no patient who had taken haemodialysis treatment just once per week in both

the groups and in the Control Group 26.7% patients for twice and 73.3% patients visited thrice for haemodialysis, 43.3% were suffering since <2 years, 40% since 2-4 years and 16.7% since >5 years in the Interventional group and in the Control group 23.3% were suffering from <2 years, 53.3% from 2-4 year and 23.3% had this disease since >5 years, all the patients undergoing haemodialysis has experienced muscle cramps previously. Maximum had experienced muscle cramps at the termination of haemodialysis i.e. 80% in interventional group and 90% in the control group. During the haemodialysis therapy 20% in interventional group and 10% in the control group, 86.7% experienced cramps in calf muscles, 10% experienced in the hamstring part and 6.7% experienced in the soleus muscles in the Interventional group and in the Control group 60% of them experienced in the calf muscles, 16.7% experienced in the hamstring part and 23.3% experienced in the soleus muscles, 20% of them had history of suffering with comorbid condition (Diabetes Mellitus, Hypertension) in the Interventional group and in the Control group 10% had comorbid condition

**Table 3: Frequency and Percentage distribution of the pre test and' post test score of cramp questionnaire chart**

**N=60**

Level of Muscle Cramps	INTERVENTIONAL GROUP				CONTROL GROUP			
	Pre Test		Post Test		Pre test		Post test	
	F	%	F	%	F	%	f	%
<b>No cramps (0)</b>	0	0%	14	46.7%	0	0%	1	3.33%
<b>Mild Cramps (1-4)</b>	4	13.3%	10	33.3%	4	13.3%	7	23.3%
<b>Moderate Cramps (5-8)</b>	21	70%	6	20%	20	66.7%	17	56.7%
<b>Severe Cramps (9-13)</b>	5	16.7%	0	0%	6	20%	5	16.7%

Data presented in table 3 displays that in the Interventional group during pre test the majority of patients i.e. 70% had experienced moderate cramps, 16.7% had experienced severe cramps, 13.3% had experienced mild cramps and after the interventional the post test score were 46.7% had no cramps, 33.3% patients experienced mild cramps, 20% patients experienced moderate cramps and no one experienced severe cramps in the post test.

In the Control group during the pre test the majority of patients i.e. 66.7%experienced moderate cramps, 20% experienced severe cramps, 13.3% experienced mild cramps and the post test score were 56.7% patients experienced moderate muscle cramps, 23.3% patients had experienced mild cramps, 16.7% had experienced severe muscle cramps and only 3.33%)patient had no cramps.

**Table 4: Mean, Standard Deviation and "t" value between the pre test and post test cramp questionnaire in the interventional group**

**N=30**

Muscle Cramp	Mean	SD	d.f.	Calculated t value	Table value	Level of significance
<b>PRE TEST</b>	7.4	1.96	29	14.42	2.05	Significant
<b>POST TEST</b>	2.5	2.45	29			

**P<0.05**

Data shown in the table 4 reveals that the mean post-test cramp score was significantly lower than the mean pre- test score. The calculated "t" value (14.42) was more than the table value (2.05)at

0.05 level of significance. Therefore, it can be said that the intradialytic stretching exercises was found to be effective in reducing muscle cramps. In this the hypothesis  $H_1$  is accepted.

**Table 5: Mean, Standard Deviation and “t” value between the pre test and post test cramp questionnaire in the control group**

n=30

Muscle Cramp	Mean	SD	d.f.	Calculated t value	Table value	Level of significance
PRE TEST	7.5	1.9	29	2.48	2.05	Significant
POST TEST	6.9	2.37	29			

**P<0.05**

Data shown in the table 5 reveals that the mean post-test cramp score was lower than the mean pre- test score. The calculated “t” value (2.48) was more than the table value (2.05) at 0.05 level of significance.

**Table 6: Association of pre- test score with selected demographic variables of interventional group**

N=30

Demographic Variables	No	Mild	Moderate	Severe	df	Chi- square value $X^2$	Tabulated value	Level of significance
	f	F	f	f				
<b>Age in Year</b>					9	6.07	16.92	#
<20	0	0	0	0				
21-40	0	2	5	1				
41-60	0	2	10	3				
>60	0	0	6	1				
<b>Gender</b>					3	2.34	7.82	#
Male	0	3	10	4				
Female	0	1	11	1				
<b>Education</b>					12	13.14	21.03	#
Illiterate	0	0	5	1				
Primary	0	0	2	0				
Secondary	0	0	5	0				
Under Graduation	0	1	7	1				
Post-Graduation	0	3	2	3				
<b>Occupation</b>					3	8.15	7.82	*
Employed	0	4	7	4				
Unemployed	0	0	14	1				
<b>Marital status</b>					9	8.05	16.92	#
Married	0	3	19	2				
Unmarried	0	1	1	2				
Widow	0	0	1	1				
Divorce	0	0	0	0				
<b>Accompanying with patient</b>					9	7.5	16.92	#
Spouse	0	1	10	1				
Children	0	0	8	2				
In law	0	0	0	0				
Other	0	3	3	2				
<b>Personal habits</b>					12	0	21.03	#



Alcoholism	0	0	0	0			
Smoking	0	0	0	0			
Chewing tobacco	0	0	0	0			
Drugs	0	0	0	0			
None	0	4	21	5			

\* Significant at  $p < 0.05$  level

#Not significant at  $< 0.05$  level

Table no.5 depicted that there was not significant association between pre- test muscle cramps questionnaire scale with the selected demographic variables such as age, gender, education, marital status, accompanying with patient and personal habits at 0.05 level of significance.

There is significant association between demographic variable in relation to occupation at 0.05 level of significance.

**Table 7: Association of pre- test score with their clinical variables of interventional group  
N=30**

Clinical Variables	No	Mild	Moderate	Severe	Df	Chi- square value X <sup>2</sup>	Tabulated value	Level of significance
	F	f	F	f				
<b>Duration of haemodialysis treatment</b>					6	1.22	12.59	#
<1 year	0	2	6	1				
1-2 year	0	1	7	2				
>2 year	0	1	8	2				
<b>Hours during haemodialysis</b>					9	0	16.92	#
3 hour	0	0	0	0				
4 hour	0	4	21	5				
5 hour	0	0	0	0				
6 hour	0	0	0	0				
<b>Sitting per week</b>					6	0.249	12.59	#
Once	0	0	0	0				
Twice	0	1	8	2				
Thrice	0	3	13	3				
<b>Suffering from kidney disease since</b>					6	5.3	12.59	#
<2 years	0	2	9	2				
2-4 years	0	2	7	3				
>5 years	0	0	5	0				
<b>Previous experience of muscle cramps</b>					3	0	7.82	#
Yes	0	4	21	5				
No	0	0	0	0				
<b>If yes, when the muscle cramps is experienced</b>					6	1.041	12.59	#
Starting of haemodialysis	0	0	0	0				
During of haemodialysis	0	1	4	1				
Termination of haemodialysis	0	3	17	4				
<b>Location of muscle cramps</b>					6	4.34	12.59	#

Calf	0	3	19	3				
Hamstring	0	1	1	1				
Soleus	0	0	1	1				
<b>Diagnosed with Comorbid condition</b>					3	2.26	7.82	#
Yes	0	0	4	2				
No	0	4	17	3				

\* Significant at p <0.05 level

# Not significant at < 0.05 level

As per table no. 6 there was no significant association with the clinical variables.

**Table 8: Association of pre- test score with selected demographic variables of control group**

N=30

Demographic Variables	No	Mild	Moderate	Severe	df	Chi- square value X <sup>2</sup>	Tabulated value	Level of significance
	F	f	f	f				
<b>Age in Year</b>					9	3	16.92	#
<20	0	0	0	0				
21-40	0	1	6	2				
41-60	0	2	11	2				
>60	0	4	3	2				
<b>Gender</b>					3	0.63	7.82	#
Male	0	3	11	3				
Female	0	1	9	3				
<b>Education</b>					12	1.98	21.03	#
Illiterate	0	0	0	0				
Primary	0	0	2	1				
Secondary	0	1	2	1				
Under Graduation	0	2	12	3				
Post Graduation	0	1	4	1				
<b>Occupation</b>					3	0.43	7.82	#
Employed	0	3	16	4				
Unemployed	0	1	4	2				
<b>Marital status</b>					9	7.01	16.92	#
Married	0	3	19	4				
Unmarried	0	0	1	0				
Widow	0	1	0	2				
Divorce	0	0	0	0				
<b>Accompanying with patient</b>					9	3.08	16.92	#
Spouse	0	2	10	1				
Children	0	1	6	3				
In law	0	0	0	0				
Other	0	1	4	2				
<b>Personal habits</b>					12	0	21.03	#
Alcoholism	0	0	0	0				
Smoking	0	0	0	0				
Chewing tobacco	0	0	0	0				
Drugs	0	0	0	0				
None	0	4	20	6				

\* Significant at p <0.05 level

# Not significant at < 0.05 level

As per table no. 7 there was no any significant association with the selected demographic variables.

**Table 9: Association of pre- test score with their clinical variables of control group**

N=30

Clinical Variables	No	Mild	Moderate	Severe	df	Chi- square value X <sup>2</sup>	Tabulated value	Level of significance
	F	f	F	f				
<b>Duration of haemodialysis treatment</b>					6	2.79	12.59	#
<1 year	0	0	3	1				
1-2 year	0	3	9	2				
>2 year	0	1	8	3				
<b>Hours during haemodialysis</b>					9	0	16.92	#
3 hour	0	0	0	0				
4 hour	0	4	20	6				
5 hour	0	0	0	0				
6 hour	0	0	0	0				
<b>Sitting per week</b>					6	0.41	12.59	#
Once	0	0	0	0				
Twice	0	1	6	1				
Thrice	0	3	14	5				
<b>Suffering from kidney disease since</b>					6	6.41	12.59	#
<2 years	0	0	6	1				
2-4 years	0	4	10	2				
>5 years	0	0	4	3				
<b>Previous experience of muscle cramps</b>					3	0	7.82	#
Yes	0	4	20	6				
No	0	0	0	0				
<b>If yes, when the muscle cramps is experienced</b>					6	2.82	12.59	#
Starting of haemodialysis	0	0	0	0				
During of haemodialysis	0	0	2	2				
Termination of haemodialysis	0	4	18	4				
<b>Location of muscle cramps</b>					6	4.73	12.59	#
Calf	0	2	14	2				
Hamstring	0	0	3	2				
Soleus	0	2	3	2				
<b>Diagnosed with Comorbid condition</b>					3	0.92	7.82	#
Yes	0	0	1	2				
No	0	4	19	4				

\* Significant at p <0.05 level

# Not significant at < 0.05 level

As per table no. 8 there is no significance association with the clinical variables.

## DISCUSSION

Many approaches for the treatment of haemodialysis treatment related cramps have been proposed, but most have been associated with serious side effects. Immediate relief from the cramp can be obtained by passively stretching the affected muscle. The use of regular stretching exercises helps to prevent the muscle cramps. **Memune Sena Ulu, Ahmet Ashen, 2015**

The present study was to assess the effectiveness of intradialytic stretching exercises on reduction of muscle cramps among patients undergoing haemodialysis.

The Interventional group during pre test the majority of patients i.e. 70% had experienced moderate cramps, 16.7% had experienced severe cramps, 13.3% had experienced mild cramps and after the interventional the post test score were 46.7% had no cramps, 33.3% patients experienced mild cramps, 20% patients experienced moderate cramps and no one experienced severe cramps in the post test.

In the Control group during the pre test the majority of patients i.e. 66.7% experienced moderate cramps, 20% experienced severe cramps, 13.3% experienced mild cramps and the post test score were 56.7% patients experienced moderate muscle cramps, 23.3% patients had experienced mild cramps, 16.7% had experienced severe muscle cramps and only 3.33% patient had no cramps.

**Panchiri Manoj et al 2017** performed a quantitative evaluative pre- experimental research approach with one group pre- test was used. 60 patients undergoing haemodialysis who met the inclusion criteria were recruited using non probability purposive sampling technique. Intradialytic stretching exercise was performed for the gastrocnemius and soleus (calf) muscles of the patient during the 2<sup>nd</sup> hour of haemodialysis. Data collected before and after interventional was collected using Modified Penn's Spasm frequency scale. Findings reveals that before performance of intradialytic stretching exercises, 66.7% and 33.3% of samples had immoderate and severe muscle cramps respectively. Post interventional 1.7% of samples had severe muscle cramps, 8.3% had mild muscle cramps and 1.7% did not have muscle cramps.

The mean post- test cramp chart score scale was significantly lower than the mean pre- test scores. The calculated "t" value 14.42 was more than the table value 2.05 at 0.05 level of significance. Therefore, it can be said that the intradialytic stretching exercise was found to be effective in reducing muscle cramps. In this the hypothesis ( $H_1$ ) was accepted.

**There is significant association between pre- test cramp questionnaire scale score and demographic variable in relation to occupation at 0.05 level of significance in the interventional group**

## CONCLUSION

Muscle cramps are the most prevalent intradialytic complication and it is a subjective feeling that can be expressed by all the patients. There are many pharmacological and non pharmacological measures are adopted to treat the muscle cramps but the data from various studies revealed that there were no complete relief from the cramps. This study was taken up to assess the effectiveness of intradialytic stretching exercises on reduction of muscle cramps among patients undergoing haemodialysis at SMI hospital, Dehradun. Intradialytic stretching exercise is an effective method which can be used as a therapy in the treatment of the muscle cramps. Regular intradialytic

stretching exercises during the haemodialysis reduce the muscle cramps and improve the quality of life among the patients undergoing haemodialysis.

### ETHICAL CONSIDERATION

To conduct research study in SMIH, written permission was obtained from the Medical Superintendent of SMIH to collect the data. Confidentiality was assured to all the subjects to get their formal co- operation. Verbal informed consent was obtained from the subjects.

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