



Research Article

EFFECTIVENESS OF INTRA-DIALYTIC STRETCHING EXERCISE ON REDUCING MUSCLE CRAMPS AMONG HEMODIALYSIS PATIENTS AT SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL, PUDUCHERRY

*Dr. Danasu, R.,

Principal, Sri Manakula Vinayagar Nursing College, Puducherry, India

ARTICLE INFO

Article History:

Received 24th March 2016
Received in revised form
29th April 2016
Accepted 21st May 2016
Published online 30th June 2016

Keywords:

Reflex Rolling Technique,
Oxygen Saturation,
Neonates.

ABSTRACT

Chronic Kidney Disease (CKD) is an important non communicable diseases epidemic that affects the world population including India. The prevalence of End Stage Renal Disease (ESRD) is raising throughout the developed and developing countries mainly due to Diabetes Mellitus and Hypertension. Among the Hemodialysis patients one of the most common complications is Muscle Cramps. It can occur anywhere in the body, but common in calf muscles, feet, toes, thigh and abdomen. In pre-test 27 (38.5%) of them had moderate level of muscle cramps and 43 (61.4%) of them had severe level of muscle cramps during Hemodialysis. In post-test, out of 70 samples 05 (07.1) had no episodes of muscle cramps, 28 (39.9%) of them had mild level of muscle cramps, 37 (52.8%) of them had moderate level of muscle cramps. This study implies that the Intra Dialytic Stretching Exercise is an effective intervention to reduce muscle cramps during Hemodialysis among Hemodialysis patients.

Copyright©2016, Dr. Danasu. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

The crucial area of human life is physical well-being, social activities, personal development, recreation and economic circumstances and these factors largely influence the person's relationships with environment. Physical well-being depends upon the accurate balance of components like fluid, solutes and even some waste materials. Thus maintenance volume of various body fluids is essential for man's survival. Given unrelenting daily acquisition of food and fluids, preservation of the internal environment requires the continuous excretion of these dietary substances in amounts that balance precisely the quantities acquired by ingestion or metabolic transformation. Hemodialysis is a procedure done to manage client with end stage renal failure by using artificial kidney machine to replace the excretory function of the failed kidneys. Among the Hemodialysis patients one of the most common complications is muscle cramps. It can occur anywhere in the body, but common in calf muscles, feet, toes, thigh and abdomen. Almost all patients complain of muscle cramps at one or other time during Hemodialysis usually of lower extremities that too of calf muscle. They are managed with normal saline infusion, simple calf massages and even by temporarily stopping the ultrafiltration till cramps go off.

Some of them are prescribed creatinine preparations regularly for preventing muscle cramps. Ridley et al., (2012) was conducted a study on Hemodialysis related leg cramps are common among older patients and the best treatment includes stretch exercises from the East Carolina University School of Medicine, United States of America. The study results showed that 85% of patients symptoms was relieved effectively by practicing the stretching exercises during the Hemodialysis. Susan Godfrey (2011) was conducted a study on intradialytic exercise programs on the Hemodialysis unit across the Canada country. Around 3500 Hemodialysis centers consists of 1,02,567 patients were participated in this exercise programs during the course of study. However this exercise shows the positive outcomes towards on reducing the muscle cramps during the dialysis programs.

STATEMENT OF THE PROBLEM

"A Study to assess the effectiveness of Intra-dialytic Stretching Exercise on reducing Muscle Cramps among Hemodialysis Patients at Sri Manakula Vinayagar Medical College and Hospital, Puducherry".

OBJECTIVES

- To assess the level of muscle cramps among Hemodialysis Patients.

*Corresponding author: Dr. Danasu, R.,
Principal, Sri Manakula Vinayagar Nursing College, Puducherry,
India.

- To evaluate the effectiveness of Intra-Dialytic Stretching Exercises on reducing level of muscle cramps among Hemodialysis Patients.
- To associate the effectiveness of Intra Dialytic Stretching Exercise among Hemodialysis Patients with their selected demographic variables.

HYPOTHESIS

H1: there will be a significant difference in the level of muscle cramps before and after administration of intradialytic stretching exercise among Hemodialysis patients.

H2: there will be a significant association between the effectiveness of intradialytic stretching exercise on muscle cramps among Hemodialysis patients with their selected demographic variables.

METHODOLOGY

A Pre Experimental Research Design was selected for this study and conducted in Sri Manakula Vinayagar Medical College & Hospital, Puducherry for a period of six weeks of data collection among 70 Hemodialysis patients selected by using the Purposive Sampling Technique. Socio-demographic variables such as age, sex, religion, educational status, occupational status, monthly income, family history of Hemodialysis, how long have you been on Hemodialysis, frequency of undergoing Hemodialysis, duration of Hemodialysis, experience on muscle cramps, site of muscle cramps, alternative therapies for muscle cramps, medications for muscle cramps, mode of Hemodialysis. The level of muscle cramps was assessed by using the modified Pens Spasm Frequency Scale. Score Interpretation, 0=No Cramps, 1- 5 = Mild, 6–10 = Moderate, and 11–15 = Severe muscle cramps. The gathered data was analyzed by using Descriptive and Inferential statistical method and interpretations were made on the basis of the Objectives of the study.

RESULTS AND DISCUSSION

In Pre - Test 27 (38.5%) of them had moderate level of muscle cramps, 43 (61.4%) of them had severe level of muscle cramps. In Post - Test 05 (7.1%) of the patients had no muscle cramps, 28 (39.9%) of the patients had mild level of muscle cramps and 37 (52.8%) of the patients had moderate level of muscle cramps. (Table.1) (Fig.1).

Table 1. Frequency and percentage wise distribution on Level of Muscle Cramps among Hemodialysis Patients. (N = 70)

S.No.	Level of Muscle Cramps	Pre - Test		Post - Test	
		n	%	n	%
1	Nil	-	-	05	07.1
2	Mild	-	-	28	39.9
3	Moderate	27	38.5	37	52.8
4	Severe	43	61.4	-	-
Total		70	100	70	100

The pre-test was assessed by total range score from 0-15. Out of that, the overall average score is 11.57 with the standard deviation of 3.52, after the administration of Intra Dialytic Stretching Exercise the level of muscle cramps was reduced to 05.44 with the standard deviation of 2.96.

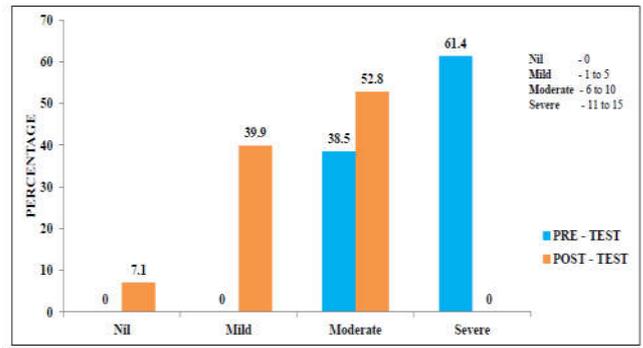


Fig 1: Percentage wise distribution on Level of Muscle Cramps among Hemodialysis Patients

The improvement was statistically tested by paired “t” test. The result found to be significant at p<0.001, because of the intervention. It indicates that the Intra Dialytic Stretching Exercise was very effective to reduce the muscle cramps during Hemodialysis procedure. (Table.2) (Fig.2). Among 15 demographic variables, educational status, family history of Hemodialysis and duration of Hemodialysis had significantly relationship with the pre-test level of muscle cramp and the P value is 0.0001. It shows that significant at p<0.0001 level.

Table 2. Comparison between Pre-test and Post-test Level of Muscle Cramps among Hemodialysis Patients. (N=70)

	Mean	S.D	‘t’ Test	‘p’ Alue
Pre-test	11.57	3.52	29.53	0.001**
Post-test	05.44	2.96		

*-p<0.05, significant and **-p<0.001, highly significant

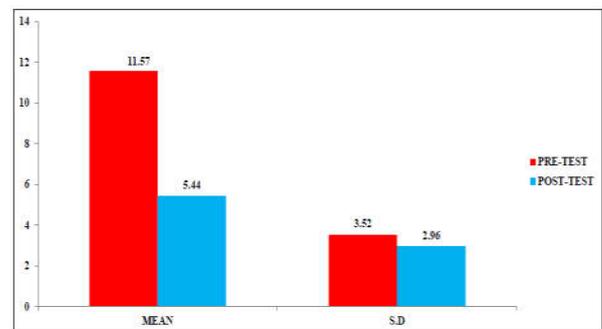


Fig. 2. Mean and Standard Deviation of Level of Muscle Cramps among Patients undergoing Hemodialysis

MAJOR FINDINGS OF THE STUDY

- In Pre - Test the level of muscle cramps were assessed for 70 samples, out of them 27 (38.5%) of them had moderate level of muscle cramps, 43 (61.4%) of them had severe level of muscle cramps.
- In Post - Test the level of muscle cramps were assessed for 70 samples, out of them 05 (7.1%) of the patients had no muscle cramps, 28 (39.9%) of the patients had mild level of muscle cramps and 37 (52.8%) of the patients had moderate level of muscle cramps.
- In pre-test the mean score was 11.57 with the standard deviation of 3.52, whereas in post-test the mean score was 05.44 with the standard deviation of 2.96.

- The paired „t“ test value is 29.53 which is statistically significant at the level of $p < 0.001$. This shows that the effectiveness of Intra Dialytic Stretching Exercise on reduction of muscle cramps among Hemodialysis patients.
- In pre-test, duration of Hemodialysis and site of muscle cramps has significant relationship with the level of muscle cramps.
- In post-test educational status, family history of Hemodialysis and duration of Hemodialysis has significant relationship with the level of muscle cramps.

Conclusion

This study implies that the level of muscle cramps among patients undergoing Hemodialysis were high. And thus Intra Dialytic Stretching Exercise is an effective intervention to reduce muscle cramps during Hemodialysis among Hemodialysis patients.

Recommendation

- The same study can be conducted in different settings.
- The same study can be conducted with true experimental research design.
- The study can be replicated with larger samples for better generalization.
- The study can be done for peritoneal dialysis patients also.
- The study can be done as a longitudinal study.
- The study can be replicated with bio-physical parameters.

REFERENCES

Alex, M.D. 2005. "Oxford Text book of Clinical Nephrology", 3rd edition, New York, Oxford University Press.

Asian Pacific Society of Nephrology, 2013. Hypertension and kidney function in an adult population of West Bengal, India: Vol:18:12, (798–807), Dec 2013.

BMC Nephrology, 2013. What do we know about chronic kidney disease in India: first report of the Indian CKD registry 14: 78.

Brunner and Suddarth's "Text book of Medical and Surgical Nursing", 10th edition, Philadelphia: Saunders Publications; 2006.

Journal of medical nutrition and nutraceuticals, 2013. Nutritional needs and dietary modifications in patients on dialysis and chronic kidney disease vol: 2 issue:1 pg.46-6.

Lewis, M.T. 2007. "Medical and Surgical Nursing assessment of clinical problems", 7th edition, Missouri: Mosby Publications.

Susan Krikorian, et al., 2013. Timing and Determinants of Erythropoietin Deficiency on CKD patients in France, Nephro Association, Nov; 26(41): 52-56.

INTERNET REFERENCES

- URL:<http://sites.tufts.edu/prep/2009/02/22/incidenceofesrd>.
- URL:<http://www.aggarwalgroup.co.uk/news.html>.
- URL:<http://www.thehindu.com/2007/08/24/stories/2007082453121100.htm>.
- National Kidney Foundation. K/DOQI clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification. 2002; 39:S1.
- URL:<http://www.Kidney.org/professionals/KDOQI/guidelinesckd>.
- <http://www.biomedcentral.com/1471-2369/14/78>.
