



EFFECTIVENESS OF INTRADIALYTIC EXERCISES ON MUSCLE STRENGTH AND MUSCLE CRAMPS AMONG PATIENT WITH CHRONIC KIDNEY DISEASE UNDERGOING HEMODIALYSIS AT SELECTED HOSPITAL, PUDUCHERRY

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ABSTRACT A Quasi Experimental study to evaluate the effectiveness of intradialytic Exercises (IDE) on Muscle strength and muscle cramps among 50 patients with Chronic Kidney Disease undergoing haemodialysis. Modified oxford muscle strength grading scale and muscle cramps questionnaire chart were used to collect the data from samples. The result of the showed in pre-test 42(84%) of them had moderate muscle strength with mean S.D of 4.06±0.512 and 47(94%) of them had moderate muscle cramps with mean &S.D of 6.62±1.22. In post-test 44 (88%) of them had high power with mean and S.D of 4.88±0.328 and 27(54%) of them had no muscle cramps with mean and S.D of 1.94±2.189. IDE showed that statistically significant difference in effectiveness on muscle strength with p value of 0.001 and IDE showed that statistically significant difference of effectiveness on muscle cramp with p value of 0.001. The finding of the study showed that the positive correlation with r value of 0.26 between the pre-test level of muscle strength and muscle cramps. In association of variable monthly income and BMI had significant association with pre-test level of muscle strength ,muscle cramps respectively. Conclusion IDE is an effective and easy non pharmacology treatment method for prevention of muscle cramps, and muscle weakness. Regular stretching and strengthening exercises during the hemodialysis helped to prevent the occurrence of muscle cramps and it improved the muscle strengthen among patient with CKD undergoing hemodialysis.

KEYWORDS : Chronic Kidney Disease, Intradialytic Exercises, muscle cramps muscle strength

INTRODUCTION

According to International Society of Nephrology (2022) Chronic Kidney Disease is a progressive condition affected >10% of the general population in global level. Chronic kidney disease is more prevalent in older individuals, women, racial minorities, and in client with diabetes mellitus and hypertension. Chronic kidney disease become more burden in low- and middle-income countries. In last 2 decades CKD is most common non communicable disease which leading cause of mortality in the world wide¹.

Sarcopenia is the major symptoms expressed by the CKD patient It occur due to accelerated protein catabolism because of the effect of CKD, dialysis procedure along with low energy and protein intakes during haemodialysis due to fluid and electrolyte shift. Patient with CKD around 35-86% of them had affected with Muscle cramps due to such vitamin, electrolyte deficiency, muscle fatigue, neurological dysfunction and impaired oxygen delivery to the muscles².

Aakash and Singh. (2018) founded that Intradialytic stretching exercises were improved the muscle strength, muscle elasticity, blood circulation, quality of life and prevent the muscle cramps during dialysis is among patient with CKD undergoing hemodialysis³.

A systemic review on international organisation standard (ISO) article like PubMed and google scholars to identify the effectiveness and safety of intradialytic stretching exercises on muscle cramps among Patient with CKD undergoing hemodialysis. The author concluded that intradialytic stretching exercises are effectively reducing the muscle cramps among hemodialysis patient⁴.

Statement Of The Problem

A Study to evaluate the effectiveness of intradialytic exercises on muscle strength and muscle cramps among patient with Chronic Kidney Disease undergoing hemodialysis at East Coast Hospital, Puducherry.

Objective

- ❖ To assess the level of muscle strength and muscle cramps among Patient with Chronic Kidney Disease undergoing hemodialysis.
- ❖ To evaluate the effectiveness of intradialytic exercise on muscle strength and muscle cramps among Patient with Chronic Kidney Disease undergoing hemodialysis.
- ❖ To correlate the muscle strength and muscle cramps among patient with Chronic Kidney Disease undergoing hemodialysis.
- ❖ To find association between the pre- test level of muscle strength and muscle cramps with selected demographic variables and clinical variables.

Hypothesis

- ❖ **H:** There will be significant changes in pre-test and post-test score of muscle cramps and muscle strength.

Methodology

A Pre experimental design was adopted 50 samples were selected by a using Convenience sampling technique at selected hospital.

Description Of The Tool

Section I

Demographic Data

This part includes the age of the patient, gender, education, occupation income type of lifestyle, religion, domicile, marital status, family history, practice of physical exercises and knowledge regarding intradialytic exercises

Clinical Variables

This part includes the BMI, blood pressure, medical history, frequency of dialysis, duration hemodialysis, and weight of fluid removes during dialysis.

Section II

Muscle cramps questionnaire chart consist of frequency of cramps, duration, level of pain, temperature and discomfort.

Section III

Modified oxford muscle strength grading scale was used to assess level muscle strength

Procedure

The researcher introduced herself to study samples, established rapport and get consent. Pre-test were assessed for 16- 17 samples by using muscle cramps questionnaire chart, modified muscle strength grading scale among patient with chronic kidney disease undergoing hemodialysis. The researcher positions the subject in the comfortable in bed days. The researcher performed the muscle strength, stretching exercises like, Ankle pump (Dorsiflexion, Plantarflexion, Ankle circle Hip straight leg raise, Hip abduction ,Knee slides, Calf muscle stretching (Gastrocnemius- Soleus Passive) and Hamstring Stretch during 2nd hours of dialysis for 20-25 min. The subject underwent exercises program each session of Hemodialysis. The Post-test was conducted after 4 weeks of intervention by using same scale.

Major Finding Of The Study

- The majority of the samples were (32%) in group of 31-40, 51-60 ,46% of them were male .96% of them no history of CKD and 82% of them had no history of practice of physical exercises

Table :1 Effectiveness Of Intradialytic Exercises On Muscle Strength And Muscle Cramps Among Patient With Chronic Kidney Disease Undergoing Hemodialysis. (N=50)

Group	Test	Mean	Standard deviation	Mean difference	't' value paired -t test	Df	'p' value
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Muscle Strength	Pre-test	4.06	0.512	-0.820	-11.09	49	0.001** HS
	Post-test	4.88	0.328				
Muscle Cramps	Pre-test	6.62	1.227	4.68	14.45	49	0.001** HS
	Post-test	1.94	2.189				

Table: 2 Correlation Between On Muscle Strength And Muscle Cramps Among Patient With Chronic Kidney Disease Undergoing Hemodialysis In Pre-test And Post-test

Correlation between pre-test and Post-test of muscle strength and muscle cramps	Mean	Standard deviaton	'r' value	'p' value
Pre-test muscle cramps	6.62	1.227	0.265	0.063 NS
Pre-test modified muscle strength	4.06	0.512		

- In association of variable monthly income had significant association with pre-test level of muscle strength and in muscle cramps BMI had significant association with pre-test level of muscle cramps among patient with CKD undergoing haemodialysis

CONCLUSION

The study concluded that intradialytic strenthing and steching were exercises improved the muscle strengthen and prevent the muscle cramps among Patient with Chronic Kidney Disease undergoing Hemodialysis. Regular stretching exercises and strengthen during the hemodialysis prevents the occurrence of muscle cramps and improves the muscle strengthen among undergoing hemodialysis.

Recommendation

- A cohort study can be done to understand the effect of long-term stretching exercises to improves the muscle strength and prevention of muscle cramps.
- The study can be replicated with larger samples for better generalization.
- Training can be provided to the staff nurses regarding passive intradialytic stretching exercises.
- Encourage patient to do exercise which will help for better outcomes.
- The intradialytic stretching and strengthen exercise can be included in the hospital policy.

REFERENCES

1. Kovesdy.C Epidemiology of chronic kidney disease an update published by International Society of Nephrology Kidney International Supplements (2022) 12, 7–11; <https://doi.org/10.1016/j.kisu.2021>
2. Alice Sabatino,Lilian Cuppari,etal. Sarcopenia in chronic kidney disease, what have we learned so far Journal of Nephrology (2021) 34:1347–1372 <https://doi.org/10.1007/s40620-020-00840-y>
3. Aakash.C,Singh.S Intradialytic stretching exercises: A conservative way to reduce muscle cramps international Journal of Nursing and Medical Investigation Int J Nur Med Inv. 2018; 3(2): 35-38.
4. Basavant Dhudum,NilimaBhore Intradialytic stretching exercises on muscle cramps Journal of Critical Reviews Issn- 2394-5125vol 7, issue 15, 2020