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Effectiveness Of Leg Exercises On Muscle Cramps Among Hemodialysis Patients In Selected Hospitals At Vijayapura.

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Abstract

Background: Dialysis is a medical treatment that removes waste materials and extra fluid from the blood when the kidneys are no longer able to work properly. During this process, blood is taken out of the body and passed through a machine that cleans it before returning it. Under normal conditions, the kidneys filter the blood, removing harmful substances and excess water and producing urine to be excreted from the body. Dialysis performs this essential function when the kidneys fail, preventing waste products from building up in the bloodstream and causing illness. **Objectives**: 1) To assess the level of Muscle cramps among the hemodialysis patients. 2) To evaluate the effectiveness of Leg Exercises on Muscle cramps. 3) To find the association between level of muscle cramp scores with selected socio-demographic variables. **Hypothesis:** H_1: The mean post-test level of muscle cramps scores will be significantly higher than mean pretest level of muscle cramps. H_2: There will be significant association between post-test level of muscle cramps scores with selected socio-demographic variables at 0.05 level of significance. **Methodology**: The research design consisted of pre-experimental research design of one group pretest and post-test design. The population selected for the study was hemodialysis patients in selected Hospitals at Vijayapur, Karnataka. The study samples were 40 hemodialysis patients and were selected by using purposive sampling technique. The development of the tool involved steps of test construction i.e. preparing the blue print, selection of items, content validation and establishment of reliability. The content validity of the questionnaire was done and modifications were done according to the suggestions given by the experts. Pre-testing and reliability of the

tools were done. The reliability coefficient of the cramp score was found to be 0.893.The tool was found to be reliable. **Results**: Out of 40 Hemodialysis patients, majority 28(70.0%) of the Hemodialysis patients had mild cramps, followed by 7(17.5%) of the Hemodialysis patients had moderate cramps, very few 5(12.5%) of the Hemodialysis patients had severe cramps and there were no Hemodialysis patients with no cramps. After leg Exercises techniques, 65% of the Hemodialysis patients had Mild cramps, 20.0% of the Hemodialysis patients had no cramps, 10.0% of the Hemodialysis patients had Moderate cramps and remaining 05% of the Hemodialysis patients had severe cramps. The mean pre-test pain score was 3.42 while mean post test score was 2.12 and difference in mean pre-test and post test score was highly significant with t-value =9.93 with p-value < 0.0001. **Conclusion and Recommendations**: The result of the study concluded that, there was a significant improvement obtained following leg exercises on muscle cramps. This study recommended that there is an immense need of leg exercises in dialysis hospitals areas to prevent the muscle cramps of dialysis patients.

Keywords: Leg exercises, Muscle cramps, Dialysis patients.

Introduction

An understanding of health is the basis of all health care ′ Health has evolved the centuries as a concept from an individual concern to a worldwide social goal and encompasses the whole quality of life. They are: ′ Biomedical Concept ′ Ecological Concept ′ Psychosocial Concept ′ Holistic Concept Health has been viewed as an absence of disease and if one was free from disease, then the person was considered to be healthy. This concept is known as biomedical concept[1].

A disease or a disorder is the result of an abnormal change or disturbance in the structure or function of an organ or organ systems. An illness is a more subjective state a person identifies themselves based on physical or mental symptoms now, diseases can either be acute or chronic. Acute diseases are temporary, and the affected person is expected to recover from them. Chronic diseases continue for a long period of time and can sometimes last for the person's entire lifetime[2].

Dialysis does the job that is normally carried out by the kidneys. That is, it takes away the substances that the body does not need that would otherwise build up in the blood and make someone ill. Dialysis also removes salt and water from the body if the kidneys have reduced the amount of urine they are making. There are two types of dialysis: peritoneal dialysis and hemodialysis. Both methods have their advantages and one type may be more appropriate for your child than the other[3].

There are 3 main types of dialysis: in-center hemodialysis, home hemodialysis, and peritoneal dialysis. Each type has pros and cons. It's important to remember that even once you choose a type of dialysis, you always have the option to change, so you don't have to feel "locked in" to any one type of dialysis. There may be medical, health, or lifestyle reasons why a certain type of dialysis is not right for you. Be sure to learn about each type and speak to your healthcare professional to find out what is right for you. The charts below will help you to compare some of the pros and cons of the different types of dialysis[4].

Dialysis is a procedure to remove waste products and excess fluid from the blood when the kidneys stop working properly. It often involves diverting blood to a machine to be cleaned. Normally, the kidneys filter the blood, removing harmful waste products and excess fluid and turning these into urine to be passed out of the body[5].

Hemodialysis initiation is needed for acute illness associated with Acute kidney injury, Uremic encephalopathy, Pericarditis, Life-threatening hyperkalemia, Refractory acidosis, Hypervolemia causing end-organ complications (e.g., pulmonary edema) Failure to thrive and malnutrition Peripheral neuropathy Intractable gastrointestinal symptoms, Asymptomatic patients with a GFR of 5-9 mL/min/1.73 m,Any toxic ingestion[6].

RNs working in a hemodialysis center plan and manage the care patients receive. The nurses responsibilities include: checking the patients' vital signs and talking with them to assess their condition, teaching patients about their disease and its treatment and answering any questions, overseeing the dialysis treatment from start to finish, making sure patients are given the correct medications ordered by their doctors, evaluating patients' reaction to the dialysis treatment and medications, reviewing the patients' lab work, home medications and activities and letting the doctors know about changes in their patients' conditions[7].

Common Complications includes Hypotension (20-30%), Muscle Cram p s Technical Complications includes Clotting, Blood leak, Disequilibrium Syndrome, Nausea and Vomiting, Headache Blood leak, Power failure Headache, Hemolysis, Chest Pain, Itching , Fever and Chills, Air Embolism – Air in bloodlines Fever and Chills, Pyrogen reaction, Hypertension, Exsanguination, Dialyzer reactions[8].

In persons with kidney disease, the kidneys are damaged and cannot filter blood properly, causing waste to build up in the body. Kidney disease increases the risk for stroke or cardiac arrest. End-stage renal disease (ESRD) is complete, permanent kidney failure that can be treated only by a kidney transplant or dialysis. Major risk factors for kidney disease include diabetes mellitus, hypertension, and a family history of kidney failure. Over 661,000 people in the United States have kidney failure, of whom 468,000 are on dialysis and 193,000 have a functioning kidney transplant. Various complications are associated with vascular access in patients who are on hemodialysis and are associated with abdominal catheters in patients using continuous ambulatory peritoneal dialysis (CAPD). These vascular access complications are similar to those seen in any patient with a vascular surgical procedure[9].

Material and Methods

Research approach: Evaluative Research Approach.

Research design: Pre-experimental; one group pre-test, post-test design.

Research setting: Selected Dialysis hospitals at Vijayapur.

Population: Hemodialysis Patients.

Sample: Hemodialysis Patients Admitted in Selected hospitals at Vijayapur.

Sampling technique: Purposive sampling technique.

Sample size: 40 Hemodialysis Patients.

Criteria for selection of the sample

The criteria for sample selection are mainly depicted under two headings, which includes the inclusion and the exclusion criteria.

Inclusive criteria: The study includes: Hemodialysis Patients, who are;

- ✓ Co-operative and willing to participate in the study.
- ✓ Available during the time of data collection.
- ✓ At age group of 40 to 70 years.

Exclusion criteria: The study excludes: Hemodialysis Patients, who are;

- ✓ Not available at the time of data collection.
- ✓ Not co-operative and not willing to participate in the study.

Development of the tool

The tool used for research study was Pain Scale which was prepared to assess the cramps in Hemodialysis patients. The tool was formulated on the basis of the experience of the investigator, review of literature, extensive library search and consultation with experts.

Description of tool: The tool consists of the following sections:

Section A

Socio-demographic variables: The first part of the tool consists of 8 items for obtaining information of the selected socio-demographic factors such as Age, Gender, Religion, Place of residency, type of family, Qualification, monthly income in year in rupees, source of Information.

Section B

Pain Scale: Pain Scale was prepared in the form of Rating Scale.

Leg Exercises : Leg exercises are physical movements targeting your lower body muscles (quads, hamstrings, glutes, calves) to build strength, improve balance, enhance mobility, boost endurance, and support daily function, with examples ranging from bodyweight squats and lunges to cycling, running, and weighted lifts like deadlifts. .

Results and Discussion

Table no 3: Assessment of the existing level of Cramps of the Dialysis patients

SI. No.	Level of Cramps	Frequency	Percentage
1	No pain	00	00
2	Mild	28	70.0
3	Moderate	07	17.5
4	Severe	05	12.5
	Total	40	100.0

Out of 40 Hemodialysis patients, majority 28(70.0%) of the Hemodialysis patients had mild cramps, followed by 7(17.5%) of the Hemodialysis patients had moderate cramps, very few 5(12.5%) of the Hemodialysis patients had severe cramps and there were no Hemodialysis patients with no cramps.

Table no 2: Comparison of pre test and post test level of Cramps of the Dialysis patients

SI. No.	Level of Cramps	Pre-test		Post-test	
		Frequency	%	Frequency	%
1	No pain	00	00	08	20.0
2	Mild	28	70.0	26	65.0
3	Moderate	07	17.5	04	10.0
4	Severe	05	12.5	02	5.0
Total		40	100.0	40	100.0

After leg Exercises techniques, 65% of the Hemodialysis patients had Mild cramps, 20.0% of the Hemodialysis patients had no cramps, 10.0% of the Hemodialysis patients had Moderate cramps and remaining 05% of the Hemodialysis patients had severe cramps.

Table no 3: Comparison of mean cramp score level of the Dialysis patients

Test	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Std. Deviation	SE Mean			
Pre-test	3.42	2.27	0.35	9.93	39	**<0.0001(S)**

The mean pre-test pain score was 3.42 while mean post test score was 2.12 and difference in mean pre-test and post test score was highly significant with t-value =9.93 with p-value < 0.0001.

Conclusion

On the basis of the findings, the investigator concluded that the intervention using leg Exercises regarding muscle cramps were effective. The decreases muscle cramps will enable them to make informed choices in decision making and adopting a healthy lifestyle, which will, in turn, help the dialysis patients.

Implications of the Study

The findings of the study have implications for Research and administration. Based on the study results, the nurses can organize awareness campaign through different media to increase the awareness regarding leg exercises. Nursing professionals can make significant contribution to health promotion among dialysis patients.

Recommendations

On the basis of the findings of the study, the following recommendations have been made for further study:

1) The study can be conducted on a larger sample.

2) A comparative study can be conducted to find out the effectiveness of Planned Teaching Programme between Other hemodialysis patients.

3) An evaluatory study can be conducted to find out the effectiveness of Planned Teaching Programme among two different groups of health professionals.

Declarations

Acknowledgement: Write acknowledgement section here you should say thanks to department, university, college etc.

Conflict of interest: The authors declare that they have no competing interest.

Funding: This research received no external funding.

Informed Consent: The authors have obtained student consent and were asked to sign the consent form. All data collected were kept strictly confidential.

Ethical Approval: The proposal for the study was approved by the Institutional Review Board of the BLDEA's College of Nursing Tikota.

Author Contributions: All authors contributed to the conception and design of the work, drafted the manuscript, revised it critically for important intellectual content, gave final approval of the version to be published and agreed to be accountable for all aspects of the work.

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