Orignal Article

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Effectiveness of Intradialytic Modified Trendelenburg Position on Selected Post Dialytic Complications Among Patients Undergoing Hemodialysis in Selected Hospital

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Abstract

Introduction: Positioning the client in good body alignment and change the position regularly and systematically is used as therapeutic significant in nursing practice. Trendelenburg position is for treating intradialytic hypotension. With so much blood out of the patient's body and with ultrafiltration over 3–4 hours, it is common for hemodialysis patients to become hypotensive. The study conducted with the aim and objectives of observing the effect of modified trendelenburg positioning against existing hospital practice on selected post dialytic complications such as hypotension, muscle cramps, nausea, vomiting, dyspnea & perspiration.

Materials and methods: Quasi experimental two group pre and post-test interventional design was selected for the study with a sample size 50 of both groups. Non probability purposive sampling technique used, patient selected for both groups with sealed envelope methods. Inclusion criteria were patient who is undergoing hemodialysis, conscious and oriented to time, place and person. Exclusion criteria were patient undergoing first hemodialysis, neurological disorder, esophageal surgery, distended abdomen and lower limb ischemia. Patient developed with severe complication during hemodialysis. Modified observational check list was used to assess the selected post dialytic complication. Baseline data was collected from patient records. Unpaired t test was used to compare the effectiveness between the group, chi-square test and fisher exact test was used for association.

Result: In experimental group the mean score of post-test (9.16) and in control group mean score of post-test was (15). Unpaired "*t*" test value for this present study was 4.45 with 48 degrees of freedom. Tabulated *t* value 2.0106 with 48 degrees of freedom. So, the null hypothesis was rejected at 0.05 level of significant and alternative hypothesis was accepted at 0.05 level of significant.

Conclusion: The study finding revealed that the use of modified trendelenburg position for patient undergoing hemodialysis is more effective than the exsiting hospital practice positions. Unpaired *t* test value 4.45 with 48 degrees of freedom. Tabulated *t* value 2.0106 with 48 degree of freedom.

Keywords: Hemodialysis; Intradialytic hypotension; Trendelenburg position.

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Introduction

Positioning the client in good body alignment and change the position regularly and systematically is used as therapeutic significant in nursing practice. Healthy people regularly shift positions to maintain comfort and wellness, however, compare to healthy individual patients are unable to move without assistance. There are number of therapeutic positions used to promote the health

of client e.g. fowler's position is the position of choice for people who have difficulties in breathing and some people with heart problems. In many situations, health team will decide which positions to use for procedure and to promote comfort of patients for the purpose of preventive, promotive, curative and rehabilitative aspect of health.[1] The placement of a hemodynamically unstable patient in a head-down position create a rate of change in the formation of fluid pressure with depth (0.45psi/ft), facilitating the venous return of blood to the heart.[2] Kidneys are cardinal organs of our body and are integral to maintain the body's homeostasis. India's statistics shows that 1 in 10 persons in the general population are estimated to have some form of chronic kidney disease. About 1,75,000 new people have kidney failure every year in India and require dialysis or kidney transplantation.[3] Despite the great advances in hemodialysis technologies, this method is still not without the complications during hemodialysis. It is usually associated with such symptoms as muscle cramps, abdominal and chest pain, nausea and vomiting, dyspnea, light-headedness, weakness, anxiety, vertigo, paleness, and sweating which significantly diminish patient's quality of life.[4] By considering the seriousness of these complications and client situation researcher felt to conduct study on effectiveness of intradialytic modified Trendelenburg position on selected post dialytic complication among patients undergoing hemodialysis.

Problem Statement

A study on effectiveness of intradialytic modified trendelenburg position on selected post dialytic complications among patients undergoing hemodialysis in selected hospital.

Objectives of the Study

Primary objectives

1. To assess the effect of modified trendelenburg position on selected post dialytic complications among the patients undergoing hemodialysis.
2. To assess the effect of existing hospital practice position (semi-fowler's) on selected post dialytic complications among the patients undergoing hemodialysis.

Secondary objectives

1. To compare the effect of modified trendelenburg position and existing hospital practice position (Semi-Fowler's) on selected post dialytic complications among the patient undergoing hemodialysis.
2. To find out the association between selected post dialytic complications with selected baseline Performa.

Hypothesis

(All hypothesis will be tested at 0.05 level of significance).

H_0: There will be no significant difference in selected post dialytic complications in intradialytic modified trendelenburg position and existing hospital practice position among patients undergoing hemodialysis.

H_1: There will be significant difference in selected post dialytic complications in intradialytic modified trendelenburg position and existing hospital practice position among patients undergoing hemodialysis.

Ethical Aspect

To obtain ethical committee approval for conducting research study, permission was taken from institutional ethics committee. Written informed consent was taken from the patient after informing details regarding research study, its benefits and effect of participation in the research study.

Conceptual Frame Work

The conceptual framework for the present study is based on Hall's core, care and cure model. Hall enumerated three aspects of the person as patient: the person, the body and the disease.[5]

Review of Literature

A review of literature is helpful to gain deeper insight of the research topic. An extensive review of related literature enabled the researcher to develop the conceptual frame work, tool, selection of research design and plan for data analysis. Review of literature for the present study is divided under two aspects: A) Review of literature related to post dialytic complication. B) Review of literature related to effectiveness of modified trendelenburg position.

Materials and Methods

Research approach

Researcher selected experimental approach for this research study.

Research design

Research design adopted for the present study is quasi experimental two group pre-test and post-test design.

Research study setting

Present study was conducted in dialysis unit of selected hospital.

Population

The study population was patient undergoing hemodialysis in selected hospital.

Sample size

In this study the sample size consisted of 50 patients who are undergoing hemodialysis in selected hospital.

Sampling technique

Non probability purposive sampling technique was used for to select the sample.

Method of Selection of Study Subjects/Eligibility Criteria

A. Inclusion criteria

1. Patient undergoing hemodialysis.
2. Patient who is available at the time of data collection.
3. Patient who is conscious and oriented to time, place and person.

B. Exclusion criteria

1. Patient who is undergoing first hemodialysis.
2. Patient with neurological disorders.
3. Patient with esophageal surgery.
4. Patient with abdominal distension.
5. Patient with lower limb ischemia.

Tool

Tool consists of baseline performa, modified observational checklist, and scales.

Section A: Consist of Baseline performa of hemodialysis patient such as Age, Gender, Religion, Marital status, Type of family, Type of diet, Education, Occupation, Family income per month, Type of renal failure, Duration of renal failure, Comorbid illness, Duration of comorbid illness, Undergoing hemodialysis since, Frequency of hemodialysis.

Section B: Consist of Modified observational check list for assessing the selected post dialytic complications.

Section C: Consist of blue print on measurement of hypotension.

Section D: SCALES

- Visual numerical rating scale for assessing the muscle cramps.
- Visual analogue scale for assessing nausea.
- Korttila scale for vomiting
- Revised Borg scale for severity of dyspnoea
- Modified visual scale for the perspiration.

Intervention

Modified Trendelenburg position

In this study modified trendelenburg position means supine position with lower extremities elevated 30 to 45 degrees, the knees straight, the trunk horizontal or very slightly raised and the neck comfortably positioned with the head level with the chest or slightly higher.[6]

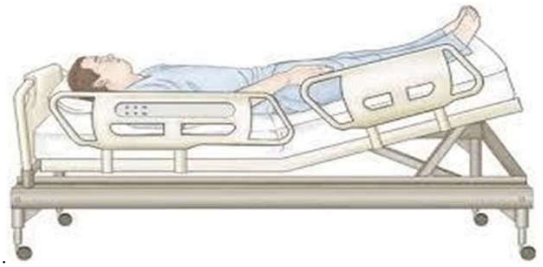

Fig. 1: Image of modified Trendelenburg position.

Method of Analysis

The data obtained was analyzed and interpreted by descriptive and inferential statistics based on the objectives of the study.

Results

Analysis of the first section revealed that higher percentage (56%) of sample were in the age group of > 51 years in control group and in experimental group (36%) of them were in 31 to 40 years age. Majority (64%) of hemodialysis patient under study were males in control group and 56% in experimental group, Highest (96%) of sample were Hindu religion in control group and 92% in experimental group. Highest percentage (84%) of

sample were joint type of family. Majority (88% of sample were vegetarian type of diet in control group and it was similar in experimental group. In this study highest percentage (100%) of sample was chronic renal failure & Majority (36%) of sample were more than 24 month duration of renal failure category. Majority (28%) of sample have diabetes mellitus as a comorbid illness in control group and (56%) were HTN as a comorbid illness in experimental. Most of (52%) of sample were more than 37 month duration of comorbid illness in control group and 68% of them in experimental group. Highest percentages (100%) of sample were undergoing hemodialysis twice in a week in both group.

Comparing the effect of modified trendelenburg position (experimental group) and existing hospital practice position (semi-fowler for control group) on selected post dialytic complications among the patients undergoing hemodialysis.

Table 1: Comparison between post-test of control group and post-test of experimental group.

Group	Post-test		Unpaired *t* value
	Mean	SD	
Experimental group	9.16	3.46	4.45
Control group	15	5.57	

Unpaired "*t*" test was used for comparing the effect of modified trendelenburg position (experimental group) and existing hospital practice position (semi-fowler for control group) on selected post dialytic complications among the patient undergoing hemodialysis.

The "*t*" value for this test was 4.45 with 48 degrees of freedom. Tabulated t value 2.0106 with 48 degrees of freedom. So, the null hypothesis was rejected at 0.05 level of significant and alternative hypothesis was accepted at 0.05 level of significant. Thus the use of intradialytic modified trendelenburg position has found more effective (t = 2.62) as compare to existing hospital practice position (semi-fowler, t = 7.2) as evidenced by occurrence of less post dialytic complications in experimental group.

Chi-square/Fisher exact test were used to find the association between selected post dialytic complications with selected baseline performa. Finding revealed that there is significant association between selected post dialytic complications with age (Fisher *t* value 0.0344) and comorbid condition (Fisher *t* value 0.0472).

Implications of the Study

The present study findings have implications for nursing practice, nursing educations, nursing administrations, and nursing research.

Nursing practice

1. This study finding also helpful for the patient those who are hemodynamically unstable.
2. This study finding would help the nephrology/dialysis nurses to understand the physiological mechanism of modified trendelenburg position.
3. The emergency management of dialysis induced hypotension includes reduction or cessation of ultrafiltration rate, reduction of blood flow rate and patients should be placed in the trendelenburg position.

Nursing educations

1. Nursing educations is developing rapidly in India and nurses are providing care through base of scientific nursing education.
2. This study is helpful for nursing personnel to increase the professional knowledge and apply this knowledge in clinical practice.

Nursing research

1. Different aspects of awareness about prevention and management intradialytic and post dialytic complications can be selected.
2. Nursing educations must emphasize on evidence based practice in view to manage the post dialytic complications.
3. It is useful to develop the new treatment modalities/therapy.

Nursing administrator

1. The nurse administrator should plan and organizing continuing education program on intradialytic, post dialytic complications and its management.

Recommendations

Based on study finding the following recommendation have made for the further study,

1. Similar study may be replicated on large samples for wider generalization.
2. True experimental study can be conducted on patient undergoing hemodialysis.

3. Comparative study can be done.

Limitations of the Study

Despite all the efforts made by the researchers, the present study had some limitations which are as following,

1. The muscle cramps and nausea is a subjective phenomenon and there are no objectives criteria for measuring the nausea and muscle cramps. The researcher therefore had to depend on patient answer to measure these complications.
2. The present study sample size was small.
3. Researcher failed to rule out some of the factors such as ht, wt., BMI, etc.

Conclusion

Post dialytic complications in the patient undergoing hemodialysis are commonly identified. If the prompt and appropriate measure not taken these post-dialytic complications can lead to serious health issues. Nursing interventions such as use of modified trendelenburg position can help the patient to reduce and overcome the occurrence of post dialytic complications. The study finding revealed that the use of modified trendelenburg position for patient undergoing hemodialysis is more effective than the existing hospital practice positions.

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