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Compare The Effect Of Straw Drinking And Mouthwash On Thirst Distress And Interdialytic Weight Gain Among Patients Undergoing Hemodialysis

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ABSTRACT

The present study was done to compare the effect of straw drinking and mouthwash on thirst distress and interdialytic weight gain among patients undergoing hemodialysis. The main objectives of the study were test the effect of straw drinking in reducing thirst distress among patients undergoing hemodialysis, test the effect of mouth wash in reducing thirst distress among patients undergoing hemodialysis, test the effect of straw drinking on interdialytic weight gain among patients undergoing hemodialysis, test the effect of mouth wash on interdialytic weight gain among patients undergoing hemodialysis, compare the effect of straw drinking and effect of mouth washes in reducing thirst distress, compare the effect of straw drinking and effect of mouth washes in reducing interdialytic weight gain and to determine the correlation between thirst distress and interdialytic weight gain among patients undergoing hemodialysis. Experimental cross over design was adopted with a sample size of 90. The tools used were personal and clinical data sheet, thirst distress scale and calibrated weighing machine. The subjects were randomly grouped into two, a coin was tossed to decide which intervention has to be given first to the subjects in Group A. Subjects in Group A received frequent mouth wash as first intervention followed by straw drinking, group B received the straw drinking as the 1st intervention followed by mouthwash. They followed each intervention for 5 days. The post test to assess the thirst distress and interdialytic weight gain were done during 2 consecutive dialysis after each intervention. Both the intervention had a significant impact on thirst distress and interdialytic weight gain. And while comparing both intervention mouth wash was better intervention which was accepted by majority of the subjects. There is a weak positive correlation exist between thirst distress and interdialytic weight gain.

Key words: thirst distress, interdialytic weight gain

INTRODUCTION

Chronic kidney disease (CKD) affects 2.4 million people worldwide and is characterized by a progressive decline in glomerular filtration rate. The disease is primarily caused by diabetes and hypertension, with less common causes including glomerulonephritis, cystic disease, and urological diseases. The increasing prevalence of CKD is partly due to factors such as an aging population, obesity rates, and increased diabetes and hypertension incidence. Despite advances in dialysis, patients with end-stage renal failure (ESKD) have a high mortality rate, with mortality rates reaching 19-24% for stage 5 CKD on dialysis. CKD is often underdiagnosed and undertreated, with 70% of patients unaware of their condition. Dialysis is the only treatment that allows patients with end-stage organ failure to live long, healthy, and productive lives. Hemodialysis is used for acute or irreversible renal failure and fluid and electrolyte imbalances. Patients with

CKD stages 1 to 5 do not receive hemodialysis, but diuretics are used to reduce fluid retention. Severe thirst distress is common.

Interdialytic weight gain is the result of salt and water intake between hemodialysis sesions. Interdialytic weight gain is a marker of blood pressure, nutrition and survival in hemodialysis patient. Excessive interdialytic weight gain is usually related to an overload of sodium, water and is the most important factor for arterial hypertension in dialysis. Severe thirst distress is frequent in hemodialysis patients. Thirst sensation can induce non-adherence with fluid restriction in patients on hemodialysis and may lead to large interdialytic weight gain. Therefore morbidity and mortality rates are adversely affected.[3]

NEED AND SIGNIFICANCE OF THE STUDY

As kidney function declines, the kidney progressively loses its regulatory capacity, so that both excretion and conservation of water and electrolytes are impaired. When sudden loads or losses of fluid or electrolytes occur, decompensation may result. These complications of CKD can be classified into water, electrolyte, acid base, metabolic, and organ system disorders. Free water clearance is maintained until the GFR is severely reduced. In advanced stages of CKD, the reduced capacity of the kidney to concentrate or dilute urine may lead to hypernatremia or hyponatremia.

Patients with a normal thirst mechanism and access to fluid will usually ingest an appropriate amount of fluid will usually ingest an appropriate amount of fluid to match obligate losses. Dehydration can occur readily, however, in patients with inadequate fluid intake because of persisting diuresis. Attention to the fluid prescription is necessary when access to water is impaired by intercurrent illnesses. So it is clear that fluid restriction will result in increased thirst distress and invention of newer modalities are mandatory. [4]

A study was conducted to identify the effect of nursing interventions on thirst and interdialytic weight gain of patients with chronic kidney disease subjected to hemodialysis. An experimental pretest posttest control group design was utilized in the study on a 40 patients with CKD subjected to hemodialysis in the dialysis unit at a tertiary care teaching hospital in south India. In the study group, nine (45%) were between the age of 21-30 years, nine (45%) in the study group were male. Thirst distress and interdialytic weight gain was reduced in the study group after nursing interventions. [5]

A study was conducted to describe the perception of thirst and correlated symptoms in HD patients, and verify the correlation between thirst intensity and the IDWG. The study was performed on an opportunistic sample of patients treated in the dialysis unit of a city hospital Italy. Data were collected using a questionnaire containing a demographic and a clinical part, the Thirst Distress Scale, and a Visual Analogue Scale (VAS) 0-10 about thirst intensity. The sample of 107 patients was composed of 71 males (66%). The average age was 68 years (SD 12, median 70 years). Fluid restriction causes severe physical discomfort and xerostomy. 66% of the respondents declared a thirst level of more than 7 on the VAS scale. The average IDWG was 2.47 kg. The chisquare test did not show a significant difference when correlated with thirst intensity ($p = 0.88$).[6]

A study was conducted to rule out the relationship between interdialytic weight gain and blood pressure among prevalent hemodialysis patients. This study used data from 32,295 dialysis sessions in 442 subjects followed up for 6 months in the crit-line intradialytic monitoring benefit study. In prevalent hemodialysis subjects, increasing percentage of IDWG is associated with increase in pre dialysis BP and BP changes with hemodialysis, however the magnitude of the relationship is modest and modified by other clinical factors. Thus although overall volume status may impact on BP to a greater extent, day to day variations in weight gain have a modest role in BP increase in prevalent subjects with end stage renal disease. [7]

A study was conducted to investigate the effect of sugar free candies on the intensity of thirst and dry mouth in patients undergoing hemodialysis. Based on the result of Wilcoxon test, there was a significant difference between the dry mouth of patients before and after the intervention in the experimental group and there was no effect on the control group. [8]

The amount of fluid that can safely drink on dialysis will depend on the amount of urine patient make, if a patient gain 1kg of weight, that correspond to 1 litre of fluid that you drunk. Thirst distress is common among hemodialysis patients and it will lead to increase water intake. Increased interdialytic weight gain can lead to

comorbidities in patients on hemodialysis and thus reducing weight gain is important.[1] So the researcher selected the study to find the effectiveness of strategies to reduce thirst distress and interdialytic weight gain.

Statement of the problem

A study to assess the effect of nursing strategies on thirst distress and interdialytic weight gain among patients on hemodialysis in selected multi-specialty hospital at Calicut.

Objectives of the study

1. Test the effect of using straw for drinking water in reducing thirst distress among patients undergoing hemodialysis
2. Test the effect of frequent mouth wash in reducing thirst distress among patients undergoing hemodialysis
3. Test the effect of using straw for drinking water on interdialytic weight gain among patients undergoing hemodialysis.
4. Test the effect of frequent mouth wash on interdialytic weight gain among patients undergoing hemodialysis.
5. Compare the effect of using straw for drinking water and effect of doing frequent mouth washes in reducing thirst distress.
6. Determine the correlation between thirst distress and interdialytic weight gain among patients undergoing hemodialysis.
7. Determine the association between thirst distress of patients on hemodialysis and selected patient variables.

OPERATIONAL DEFINITIONS

Effect: In this study effect refers to the extent to which the nursing strategies have influenced the outcome of thirst distress and interdialytic weight gain.

Nursing strategies: In this study nursing strategies denote nursing interventions like mouthwash and use of thin straw for drinking water.

Mouth wash involves repeated rinsing of mouth with 100ml of water perform 2-3 hourly for 4-6 times a day.

Straw drinking include using a thin straw for drinking recommended amount of water.

Thirst Distress: in this study thirst distress refers to the degree to which a person is bothered by thirst or its associated discomfort as measured by thirst distress scale.

Interdialytic weight gain: in this study interdialytic weight gain refers to increase in the weight between two consecutive dialysis sessions which is measured by calibrated weighing machine at the end of the one dialysis session and at the beginning of next hemodialysis session.

Patient on hemodialysis: In this study patients on dialysis refers to those patients who are undergoing regular hemodialysis.

REVIEW OF LITERATURE

The review of literature for the present study has been taken up from different sources like text book, journals, articles, and published research studies. The literature reviewed for the present study is organized and presented in the following headings.

1. CKD and Hemodialysis related problems
2. Thirst distress and interdialytic weight gain in patients undergoing hemodialysis

3. Effect of interventions in reducing thirst distress and interdialytic weight gain of patients undergoing hemodialysis

RESEARCH METHODOLOGY

Research approach

A quantitative approach was adopted

Research design

Experimental - Cross over design was used in this study

Variables

Dependent variables :- Thirst distress and interdialytic weight gain of patients undergoing hemodialysis.

Independent variables :-Straw drinking and frequent mouth wash

Setting of the study

The research setting selected for the present study was dialysis unit of Santhi Hospital, Omassery and Baby Memorial Hospital, kozhikode.

Population

All the patients with CKD admitted in dialysis unit of Santhi Hospital, Omassery and Baby Memorial Hospital, kozhikode.

Sample:

The target population selected for present study comprised of patients undergoing hemodialysis, and the accessible population for the present study was patients undergoing hemodialysis at dialysis unit of Baby Memorial Hospital and Santhi Hospital who had met the inclusion and exclusion criteria.

Sample size:

The present study sample consist of 90 patients undergoing hemodialysis at dialysis unit of Baby Memorial Hospital and Santhi Hospital who had met the inclusion criteria.

Sampling technique:

Simple random technique - The subjects were randomly grouped into two, subjects who came on the 1st day was included into group A, subjects who came on the next day were included in Group B and subsequent subjects were assigned to alternate groups. A coin was tossed to decide which intervention has to be given first to the subjects in Group A.

Description of the tool

The tool were prepared on the basis of objectives of the study. In this study tool used were: -

Tool 1:- Personal and clinical datasheet: - As two section , It covered personal data of patients undergoing hemodialysis. This tool consist of 12 items, to elicit background information such as age, gender, religion, education, occupation, marital status, monthly income, duration of illness, co-morbidities, smoking habit and techniques used to reduce thirst. Section B:-It covered clinical data which included information such as serum sodium, potassium, urea, creatinine, daily water intake and daily urine output which was collected from the hemodialysis handbook of the subjects.

Tool 2: -Thirst distress scale:- Thirst distress scale contains 6 items related to thirst distress of patient and each response depend on patients feeling. It is rated on a five point likert scale ranging from 1-5 (Strongly disagree-1, Mildly disagree-2, Neutral-3, Mildly agree-4, Strongly agree-5). The range of total score is 6-30, with the high score indicating more thirst distress.

Tool 3: -Calibrated weighing machine

Content validity

Six experts from the field of medical-surgical nursing department. Based on the suggestions and recommendations the tools were modified with the help of guide.

Reliability of the tool

The reliability of thirst distress scale was tested by Cronbach's alpha. It was found to be r =0.814. Hence the tools was considered as reliable.

Data collection process

For collecting the data formal administrative permission was obtained from the administrative officer of Santhi hospital, Omassery, HOD of Nephrology department of Baby Memorial Hospital, and chief of medical services Baby Memorial Hospital, Kozhikode. Research proposal including the data collection tool was presented to the institutional ethical committee. The investigator got the ethical clearance from the institutional ethical committee of Baby Memorial Hospital.

The main study was conducted for one month. After initial screening, the researcher identified subjects meeting inclusion criteria. The investigator met the subjects individually and explained the purpose of the study and obtained the written informed consent. Initially 94 patients were selected, out of which 4 subjects were dropped out from the study during post-test. Confidentiality of the data was ensured during the study.

The subjects were randomly grouped into two, subjects who came on the 1st day was included into group A, subjects who came on the next day were included in Group B and subsequent subjects were assigned to alternate groups. A coin was tossed to decide which intervention has to be given first to the subjects in Group A.

Subjects in Group A received frequent mouth wash as first intervention followed by straw drinking, group B received the straw drinking as the 1st intervention followed by mouthwash. They followed each intervention for 5 days. Mouth wash involves repeated rinsing of mouth with 100 ml of water and performed 2-3 hourly for 4-6 times a day. Straw drinking include using a thin straw for drinking recommended amount of water.

After establishing the healthy rapport with the patients the structured questionnaire were given to collect the personal and clinical data and thirst distress scale were given to collect the thirst distress score. Then the researcher measured the weight (kg) of the patients to know the interdialytic weight gain. Instructions were given regarding the interventions to be practiced at home. During the instruction the doubts raised by the subjects were clarified. Subjects were followed by telephone calls to reassess that they were following the instructions. The post test to assess the thirst distress and interdialytic weight gain were done during 2 consecutive dialysis after each intervention.

RESULT AND DISCUSSION

The following were the major findings of the study.

Section 1: Characteristics of sample

- Among the total subjects, 31.1 percent of subjects were in the age group of 51-60 years, while the least no of subjects (2.2 %) were in the age group of 31-40.
- More than half (67.8%) of the subjects were males

- More than half (51.1%) of the subjects belong to the Islam religion while rest of the 32.2 percent were Hindus and 16.7 percent were Christians.
- Majority of subjects (32.2%) had high school education, while 17.8 percent were had undergraduate education, 16.7 percent had middle school education, 13.3 percent had higher secondary education, 8.9 percent were literate and least number of subjects were 4.4 percent illiterate.
- Out of 90 hemodialysis patients 86.7 percent were married
- Most of the samples were having skilled job, 30 percent of them were unemployed, 22.2 percent had unskilled job, 7.8 percent were professionals, and remaining 5.8 percent were having arithmetic skilled job.
- Out of 90 subjects 38.9 percent of subjects had monthly income between 10,000-25,000, while 32.2 percent had monthly income less than 10,000, 18.9 percent had between25,001-40,000, 5.6 percent had income between 40,001-55,000. Only 4 percent had a monthly income more than 55,000.

Section 2: Characteristics of subjects based on clinical data

- Majority (34.4%) of them had a duration of illness between 1 to 3 years.
- Out of 90 subjects 85.6 percent of subjects had normal serum sodium level (135-145mEq/L) whereas 4.4 percent had a low and 10% had an elevated level of serum sodium.
- More than half (50%) of the subject had normal serum potassium level (3.5-5mEq/L)
- Among the total subjects 98.9 percent had elevated level of serum urea whereas 1.1% had a normal range (1.8-7.1mmol/L).
- Out of the 90 subjects 97.8 percent had elevated level of serum creatinine whereas 2.2 percent had normal level (0.6-1.2)
- Majority (73.3%) of them took 500-1000 ml of water daily and 26.7 percent of the subject took more than 1000 ml water daily, none of them took water less than 500 ml.
- More than half (71.1%) of them had <250 ml of daily urine output and 25.6 percent of the subject had 250-500 ml, none of them had output more than 750 ml.

Section 3:-Test the effect of mouthwash on thirst distress and interdialytic weight gain of patients undergoing hemodialysis

- The reduction in the thirst distress score was significant in the post test1 and post test 2 (p =0.000). Hence it can be inferred that there is significant difference between the pre-thirst distress score and post thirst distress score after mouthwash in patients undergoing hemodialysis
- The mean increase in interdialytic weight gain after mouthwash were 0.31489 and 0.51222 respectively. The calculated t value is 13.194 and 9.129 with a p value of 0.000 which was less than the level of significance at 0.05 level. Hence it can be inferred that there is significant reduction in interdialytic weight gain after mouthwash.

Section 4: Effect of straw drinking on thirst distress and interdialytic weight gain among patients undergoing hemodialysis

- The reduction in the thirst distress score was not significant in the post test1 (p=0.681). but it was significant during the post test2 with a p value 0.000. Hence the null hypothesis was rejected and alternative is accepted. Hence it can be inferred that there is significant difference between the pre thirst distress score and post thirst distress score after using straw for drinking water in patients undergoing hemodialysis.
- The reduction in the thirst distress score was significant in the both post test with a p value of 0.000. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. Hence it can be inferred that there is significant reduction in interdialytic weight gain after practicing straw drinking.

Section 5: -Compare the effect of using straw for drinking water and effect of doing frequent mouth washes in reducing thirst distress.

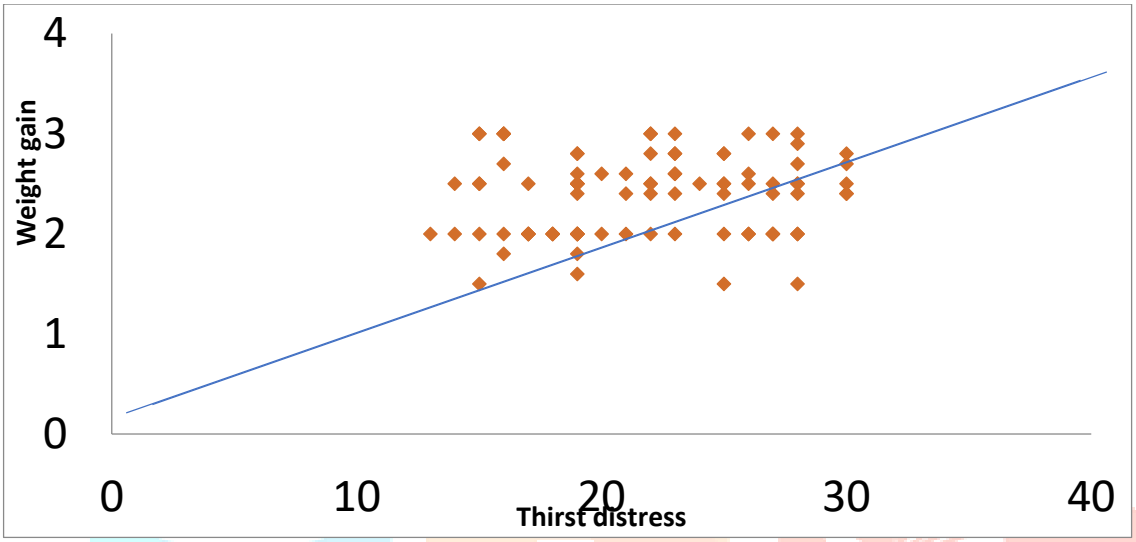
- The p value observed in first comparison group were 0.112 and in second group were 0.000, which were significant at five percent level of significance. So there was a significant difference in thirst distress between frequent mouth wash and straw for drinking water. Hence it can be inferred that

frequent mouth wash was significantly better than straw for drinking water on reduction of thirst distress among patients undergoing hemodialysis.

Section 6:- Compare the effect of straw drinking and effect of mouth washes in reducing interdialytic weight gain

- The p value observed in both comparison group were 0.000, which were significant at five percent level of significance. So there was a significant difference in interdialytic weight gain between mouth wash and straw drinking. Hence it can be inferred that mouth wash was significantly better than straw drinking on reduction of interdialytic weight gain among patients undergoing hemodialysis.

Section 7:- Determine the correlation between thirst distress and interdialytic weight gain among patients undergoing hemodialysis.



CONCLUSION

When comparing the effect of nursing strategies like mouthwash and straw drinking, mouthwash is a better option which is accepted by most of the samples and it had a great impact on thirst distress and interdialytic weight gain. There is weak positive correlation between thirst distress and interdialytic weight gain, both these variables are in direct proportion.

NURSING IMPLICATIONS

The findings of the study have implications in nursing education, practice, research and administration.

Nursing education

The nurse educators are role models in providing a foundation for research based practice. They must have ability to foster an appreciation for research and make it interesting for the student.

- Curriculum should stress the importance of assessing patients with CKD on hemodialysis for thirst distress and other associated dryness issues
- Evidence based practice should be incorporated with the educational program
- The nurse educator should address the need for using thirst distress scale in assessing thirst distress
- Nurse educator should attend various in service and continuing educational prorammes, journal club etc to update their knowledge regarding importance and newer techniques for assessing the thirst distress and strategies to reduce it.

Nursing practice

The patients arriving for hemodialysis has to be equipped with measures to improve their thirst distress and reduce interdialytic weight gain. It might enhance combined effort of health institutions administration towards the establishment of team work to induce change with the aim of improving the nutritional status and quality of life.

- Read articles and continuing nursing education on care of patients on hemodialysis and strategies to reduce thirst distress and IDWG
- Use appropriate tool for measuring thirst distress for patients on hemodialysis
- Apply the knowledge and implement such strategies in-order to reduce thirst distress

Nursing Research

- Research acts as a basement for evidence based practice which facilitate a better outcome. The findings should be disseminated into practice area to make it more worthy.
- The nurse researcher can conduct further research with different aspects in the same area. Thereby generalization of the findings can be possible. It helps to improve the professional body of knowledge.

Nursing administration

- Nurse administrators collaborating with governing bodies can make policies that give importance to imparting knowledge to patients undergoing hemodialysis
- She can also arrange in service education program for staff nurses in hemodialysis unit regarding the importance of health education regarding the need and significance of strategies to reduce thirst distress

RECOMMENDATIONS

- A similar study can be done on patients with chronic heart failure or gastric surgery patients.
- A similar study can be conducted to compare the effect of different interventions.
- Use of such strategies among patients receiving hemodialysis will be more beneficial which can be educated to the patients.

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