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Medical Surgical Nursing

Effectiveness of Comprehensive Nursing Strategies on CKD Patients Subjected to Hemodialysis

Miss Liya[1], Miss Mukta[1], Miss Vasanti[1], Miss Anitta[1], Miss Radha[1], Mr Govardhan[1], Mr Vireshwar[1], Mrs. Vanitha UB[2*], Dr. Deelip S Natekar[3]

[1]BSc IV and PBBSc II year students, BVVS Sajjalashree Institute of Nursing Sciences, Navanagar, Bagalkot – 587102, Karnataka, India
[2]Assistant Professor, Dept. of Medical Surgical Nursing, BVVS Sajjalashree institute of nursing sciences, Navanagar, Bagalkot. – 587102, Karnataka, India
[3]Principal, BVVS Sajjalashree Institute of Nursing Sciences, Navanagar, Bagalkot – 587102, Karnataka, India

*Corresponding author: Mrs. Vanitha UB
Assistant Professor, Dept. of Medical Surgical Nursing, BVVS Sajjalashree institute of nursing sciences, Navanagar, Bagalkot. – 587102, Karnataka, India

Abstract	Original Research Article

Background of the study: Chronic kidney disease (CKD) patients undergoing hemodialysis often face the challenge of fluid restrictions, which are necessary to prevent complications such as acute pulmonary edema and congestive heart failure. One of the most distressing symptoms for these patients is intense thirst, compounded by dry mouth (xerostomia). Therefore, this study was aimed to assess the effectiveness of comprehensive nursing strategies on reducing the level of thirst distress on CKD patients subjected to hemodialysis at HSK Hospital, Bagalkot. ***Methodology:*** This was a randomized controlled trail with pre-test post-test control group design. A Simple Random sample of 36 CKD patients subjected to hemodialysis was selected from HSK Hospital, Bagalkot. Socio demographic information of CKD patients subjected to hemodialysis was gathered using structured socio demographic profile and level of thirst distress were assessed using Standardized Thirst Distress Scale and Visual Analogue Scale respectively. Data were analyzed in terms of objectives of the study. ***Findings:*** Findings related to the significance of the difference between pre test and post test scores of the CKD patients shows that, difference between mean pre test [22.72] and mean posttest [11.77] scores, found to be statistically difference at 0.05 level of significant **[t= 10.95 (p valve=0.0001) p<0.05]**. The mean post test level of thirst distress will be significantly lower than the mean pre test level of thirst distress among CKD patients subjected to hemodialysis. ***Conclusion:*** The finding of the study concluded that the CKD patients subjected to hemodialysis had increased level of thirst distress. There was significant difference found between the two groups, therefore study showed that the selected comprehensive nursing strategies is found effective to reduce the level of thirst distress among CKD patients subjected to hemodialysis.
Keywords: Effectiveness, Chronic kidney disease, selected nursing strategy, hemodialysis, thirst distress, mouthwashes, socio-demographic variables.

INTRODUCTION

Chronic Kidney Disease (CKD) is a global health concern, and its progression to end-stage renal disease often necessitates hemodialysis, a life-sustaining treatment. While hemodialysis is crucial for managing CKD, it also introduces several challenges for patients, particularly in terms of managing their hydration and fluid balance [1].

One of the common complications that every CKD patient, who undergoes hemodialysis faces is thirst distress. Fluid restriction ranks high among the difficulties due to the distress inherent to feeling thirsty [2]. Thirst is a subjective sensation and that sign clearly defined change in the physical, mental and social functioning of the patient. Thirst distress is the degree to which the patient is bothered by thirst or its associated discomfort. Patients with CKD on hemodialysis often face significant challenges related to the management of fluid balance, which directly impacts their experience of thirst [3].

Constant thirst can contribute to psychological distress, anxiety, irritability, and poor overall well-being. Despite these challenges, effective non-pharmacological interventions to address thirst are relatively understudied, especially those that can be safely

incorporated into the daily routine of hemodialysis patients without compromising their treatment protocols [5].

Conventional methods to manage thirst in CKD patients primarily focus on pharmacological interventions, such as the use of thirst-relief medications. However, these solutions are not always effective and may come with side effects [6]. Therefore, non-pharmacological strategies have gained attention as potentially safer and more sustainable alternatives.

Some of the interventions to reduce the thirst distress among CKD patients are sucking ice cubes, chewing bubble gums, frequent rinsing of mouth, applying lip balms, restricting salt etc. [7]. Among these, chewing ice cubes and frequent mouth washing have shown promise in alleviating the distressing sensation of thirst among CKD patients subjected to hemodialysis at HSK Hospital, Bagalkot.

MATERIAL AND METHODS

Study Design and Participants
Present study is a randomized controlled trail using pre-test (O_1) and post-test (O_2) for both experimental and control group design conducted between 21-10-2024 to 04-11-2024. A random sampling technique with 36 CKD patients who are receiving dialysis for a minimum of 3 months subjected to hemodialysis with moderate to severe level of thirst distress attending Dialysis ward of HSK Hospital, Bagalkot. Patients who are suffering from chronic diseases like stroke and paralysis, such patients are excluded from the study.

Instruments
The tool adopted was self prepared socio demographic variables and standardized a thirst distress scale and visual analogue was used to assess the level of thirst distress in both the groups and. The score for thirst distress scale ranges from 0 -14 and that of visual analogue scale ranges from 0-10 was assessed by the researcher.

Tool	Aspect to be quantified/question	Ranking scale
Thirst Distress Scale (TDS)	1. My mouth is dry [ ] 2. My lips are dry [ ] 3. My tongue is thick [ ] 4. My saliva is thick [ ] 5. My throat is dry [ ] 6. I have a bad taste in my mouth 7. I want to drink water [ ]	0. = not bothered [ ] 1. = slightly bothered [ ] 2. = very bothered [ ]
Visual Analogue Scale (VASs)	How intense is your thirst at the moment?	0-10 where 0 means not thirsty at all and 10 means intense thirst
	How distress (or bothersome) is your thirst at the moment?	0-10 where 0 means not distressed at all and 10 means extreme distress

Socio-demographic Variables and Clinical characteristics
Socio-demographic variables included Age, Gender, Religion, Educational status, Occupation, Family monthly income, co-morbid condition, habit of smoking pre -dialysis weight, post dialysis weight, and number of dialysis done weekly.

Data Collection Procedures
Prior permission was taken from HSK Hospital, Bagalkot before the beginning of data collection procedure and samples were from the same institution. Every CKD patients subjected to hemodialysis was fulfilled the inclusion criteria, after obtaining consent from participants, underwent the structured interview which lasted approximately 20 to 30 minutes. All the information collected was based on patient's self report. Pre-test conducted to assess the level of thirst distress in CKD patients subjected to hemodialysis of experimental group and control group followed by administration of comprehensive nursing strategies such as; chewing ice cubes and frequent mouth washing whenever they felt

thirsty for 1 week. On 7th day immediate post intervention assessment of level of thirst distress was done among CKD patients subjected to hemodialysis of both experimental group and control group. After that health education provided to the CKD patients subjected to hemodialysis of control group.

Data Analysis
The data will be analyzed by using descriptive and inferential statistics. The Numerical data organized and summarized with the help of descriptive statistics like frequency and percentage distribution, mean, median, standard deviation and correlation coefficient. Univariate analysis done for samples according to their socio-demographic factor and symptoms of thirst distress. The chi square test, will be used to determine the association between comprehensive nursing strategies to reduce level of thirst distress and socio demographic factors of patient. Independent t-test will be used to determine the effectiveness of comprehensive nursing strategies on level of thirst distress among CKD patients subjected to hemodialysis

RESULTS

Description of socio-demographic characteristics of subjects

In the experimental group the Majority of CKD patients were in the age group of 36-50 years (55.56%), males (83.34%), Hindu religion (77.78%), primary education (50%), occupation (27.77%) were daily wages workers, Monthly income < 10,000. (44.44%), (72.22%) have no habit of smoking, (50%) were in between 56-65kg in pre dialysis weight, post-dialysis weight (50%) were in between 56-65kg and (94.44%) were taking weekly twice dialysis. Where as in control group the

Majority, of CKD patients were in the age group of above 50 years (55.56%), males (66.67%), Hindu religion (88.89%), (38.89%) had primary and higher secondary education. occupation (44.44%) were private employees, Monthly income < 10,000. (50%), (72.22%) have no habit of smoking, (57.56%) were in between 45-55 kg, post-dialysis weight (55.56%) were in between 45-55 kg and (77.78%) were taking weekly twice dialysis.

Evaluation of the Effectiveness of comprehensive nursing strategies like chewing ice cubes and frequent mouth washing on level of thirst distress among patients with CKD subjected to hemodialysis

Table 2: There will be significant difference between mean pretest and post test score towards reduction of level of thirst distress among patients with CKD subjected to hemodialysis, N=36

Level of thirst distress	Mean	SD	Mean Diff.	SD Diff.	t-value	p-value
Pre-test	22.72	2.69	10.95	0.35	10.96	0.0001*
Post-test	11.77	2.34				

P value is <0.05

Findings related to the significance of the difference between pre test and post test scores of the CKD patients shows that, difference between mean pre test [22.72] and mean posttest [11.77] scores, found to be statistically difference at 0.05 level of significant [t= 10.95 (p valve=0.0001) p<0.05]. As Hypothesis states, H_1: There will be significant difference between mean pretest and post test score of experimental group of thirst distress patient with chronic kidney disease undergoing hemodialysis. Hence H_1 is accepted.

To Compare the effectiveness of comprehensive nursing strategies in experimental group and control group (routine care) CKD patient subjected to hemodialysis, N=36

Group	Mean	SD	M.D	T. CAL	P Table
Experimental Group	11.77	2.34			
Control Group	22	2.27	10.23	12.70	0.0001*

P value is <0.05

Table 3: Represents to compare the mean and standard deviation of the post test level of thirst distress among patients with chronic kidney disease undergoing hemodialysis in both the group. In experimental group the mean score was 11.77 & S.D 2.34 whereas in control group the mean score was 22 & S.D 2.27. The mean

difference was 10.23 and the calculated t value was 12.70 indicating that there was a significant difference in post test level of thirst distress among patients with chronic kidney disease undergoing hemodialysis in both the groups at P<0.05 level.

The association of pre test score with their socio-demographic variable in patients with CKD subjected to hemodialysis in (both groups)

Sl. No	Socio Demographic variables	Experimental group			Control group		
		Chi Square	P Value	Signification	Chi Square	P Value	Signification
1	age	2.492	0.11	NS	1.022	0.31	NS
2	gender	0.02	0.88	NS	0.04	0.95	NS
3	religion	0.02	0.88	NS	0.04	0.95	NS
4	education	0.554	0.45	NS	0.336	0.88	NS
5	occupation	1.022	0.31	NS	2.362	0.11	NS
6	monthly income	0.02	0.88	NS	0.006	0.86	NS
7.a	Diabetes mallets	0.004	0.95	NS	0.654	0.64	NS
7.b	Cardiovascular disease	0.554	0.45	NS	0.369	0.23	NS
8	smoking	0.209	0.64	NS	0.564	0.32	NS
9	pre dialysis wt	0.865	0.35	NS	0.463	0.24	NS
10	post dialysis wt	0.407	0.52	NS	0.502	0.45	NS
11	total no of dialysis weekly	0.554	0.45	NS	0.865	0.75	NS

DF=Degree of freedom	*= Significant
α= 0.05	NS = Not significant
"P" is <0.05	

Findings related to the association between pretest scores of CKD patients with their selected socio demographic variables reveals that, there was no significant association found between the pre test level of CKD score of patients in both the groups with all the socio-demographic variables are Not Significant.

Hence H3: There is association of pre test score with their socio-demographic variable in patients with CKD subjected to hemodialysis is rejected.

DISCUSSION

Findings related to the significance of the difference between pre test and post test scores of the CKD patients shows that, difference between mean pre test [22.72] and mean posttest [11.77] scores, found to be statistically difference at 0.05 level of significant **[t= 10.95 (p valve=0.0001) p<0.05]**. It is clear that there is a statistically difference between mean post test level of thirst distress and mean pre test level of thirst distress among patients with chronic kidney disease undergoing hemodialysis. It means that effectiveness of comprehensive nursing strategies is more effective in reduction of level of thirst distress among CKD patients subjected to hemodialysis. Hence Hypothesis 1 is accepted.

The study represents to compare the mean and standard deviation of the post test level of thirst distress among CKD patients subjected to hemodialysis in experimental group and control group. In experimental group the mean score was 11.77 with standard deviation of 2.34 and in control group the mean score was 22with standard deviation of 2.27. The mean difference was 10.23and the calculated t value was 12.70 indicating that there was a significant difference in post test level thirst distress among CKD patients subjected to hemodialysis in experimental group and control group at P<0.05 level.

As per the study results, there was no association between pre test scores on level of thirst distress with the selected socio demographic variables.

RECOMMENDATIONS

- Similar study can be conducted to assess the effectiveness of comprehensive nursing strategies on reducing the level of thirst distress among CKD patients who all are not undergoing for hemodialysis.
- Similar type of study can be conducted for a large group.

- Similar study can be conducted as a comparative study between interventional methods.

CONCLUSION

The mean post test score of thirst distress in the experimental group (11.77) is lesser than mean post test score of thirst distress in the control group (22), hence the study revealed that the effectiveness of comprehensive nursing strategies like chewing ice cubes and frequent mouth washing on level of thirst distress among patients with CKD subjected to hemodialysis. The calculated t value (12.70) is greater than the table value (0.0001) at 0.05 level of significance, showed that there is a significant difference between the two groups, hence it is significant. Therefore, H1 is accepted.

Ethical Consideration

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