Research Article

A study to assess effectiveness of structured teaching programme on knowledge regarding home care management of hemodialysis subjects – A statistical approach

Trupti Saket Bhosale[1], Satish Vasant Kakade[2], Tukaram B Zagade[3]

[1]Directorate of Research, Krishna Institute of Medical Sciences, Karad, Maharashtra, India, [2]Department of Preventive and Social Medicine, Krishna Institute of Medical Sciences, Karad, Maharashtra, India, [3]Department of Medical Surgical Nursing, Krishna Institute of Nursing Sciences, Karad, Maharashtra, India

Correspondence to: Trupti Saket Bhosale, E-mail: truptivp2010@gmail.com

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ABSTRACT

Background: When the kidney is unable to filter blood, dialysis is an alternate method for filtration. Lifetime dialysis becomes unavoidable unless kidney transplantation is successfully done. Hemodialysis subjects normally have a poor quality of life and there is a positive association between quality of life of patient and support of family. Hence, it was necessary to conduct this study for creating awareness regarding the home management of dialysis among the caregivers of hemodialysis subjects to improve their knowledge. **Objectives:** The objectives of this study were as follows: (i) To assess the effectiveness of structured teaching programme (STP) on knowledge regarding home care management of hemodialysis subjects and (ii) to find association between pre-test knowledge and selected demographic variables. **Materials and Methods:** The evaluative approach was used; one group pre-test and post-test design was used. The study was conducted on sample of 40 caregivers of hemodialysis subjects using convenient sampling technique. The data were collected by structured questionnaire. The data were analyzed using descriptive and inferential statistics. **Results:** The mean knowledge score of caregivers of hemodialysis subjects during the pre-test was 39.48%, whereas it had risen up to 82.50% during the post-test as an effectiveness of STP. Therefore, the difference assessed was 43.02% between pre-test and post-test. **Conclusion:** There was significant difference between the pre-test knowledge level and post-test knowledge level of caregivers on home care management of hemodialysis subjects. Hence, health education programs and on-going teaching both can further improve the knowledge of caregivers.

KEY WORDS: Hemodialysis; Caregivers; Structured Teaching Programme; Management

INTRODUCTION

A patient at the last stage of kidney disease depends on dialysis to mechanically remove fluid, waste products, and electrolytes from the blood. End-stage renal disease is a chronic illness which reduces the lifespan of patients. In worldwide, 30 million peoples were suffering from kidney diseases. In India, around 8% of the population have renal problem. In that, >5% were undergoing hemodialysis.

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The available treatments are not able to cure disease; instead, they offer extend life expectancy, symptom relief and improve the quality of life. When the kidney is not able to filter blood, another method for filtration is must. Lifetime dialysis becomes unavoidable unless transplantation of kidney is done and is successful.[1] Hemodialysis is the most well-accepted form of treatment for end-stage renal failure.

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Hemodialysis takes place at least 3 times in a week, each session continuing between 3 and 6 h depending on the size of the patient and their compliance with dietary restrictions. A few patients of residual renal failure function can be managed successfully with twice weekly dialysis, but this is not a satisfactory for majority of patients.[2]

In renal failure, the patient's capability of excretion of fluid load is absent or reduced. Fluid balance is maintained by removal of fluid on dialysis along with restriction of sodium and water. Disobedience with any can lead to volume overload, which presents in the same way as heart failure, with peripheral and pulmonary edema. Fluid overload can cause hypertension in renal patients. Fluid depletion is less common but may be caused by over vigorous removal of fluid during dialysis or by intervening diarrhea or vomiting. It usually presents with symptomatic hypotension and with nausea and weakness.[2]

Diagnosis of renal failure and its need is usually enormous to the patient and his/her family. At the beginning, many of the patients feel positive about the dialysis as it makes them feel better and keeps them alive, but there is often great uncertainty about whether it is substantial. The disease and its treatment affect each and every point of the life of patient.

The need for proper education and preparation of the patient and the family at all stages of chronic renal failure and potentially heading toward last stage renal failure cannot be neglected.[5] Teaching must be provided in short sessions and time provided for clarification and repetition. Time should be provided to the patient and family to ask queries and gain information.[3]

An assessment has to be done to identify the learning needs of the patient and family members. A patient beginning with dialysis has to receive information about the procedure, purpose of the treatment, medications, side effects, fluid overload, diet and restrictions of fluid, prevention and management of complications, psychosocial distress, and financial aspects.[4]

The nursing staff working in dialysis unit should help the patient and the caregivers of patients to get knowledge about the procedure and dialysis unit, as the nurse has to provide information and care required during the procedure of dialysis and the patient along with caregivers will develop better relationship with the nurse. Hence, the patient and the caregivers must have knowledge related to type of pain experienced during the treatment and how much time and how many times the dialysis will be done, the effects of the dialysis, diet during the dialysis, and the extent to which the family or the caregiver's involvement between the therapy.[6]

Chronic renal failure and hemodialysis treatment is a long-term process. Patients need to have an appropriate strategy to face the stress from the disease and hemodialysis treatment. Giving sufficient guidance before starting of dialysis may be helpful in both physical condition at dialysis beginning and medical economic advantages through the dialysis.[7]

Hemodialysis subjects normally have a poor quality of life and there is a positive association between support of family and the patient's quality of life.[8] Hence, providing proper knowledge to caregivers of hemodialysis subjects regarding home care management of hemodialysis subjects will improve the quality of life of the chronic renal failure subjects who had been on hemodialysis. The objectives of the present study were to plan structured teaching programme (STP) on knowledge regarding home care management of hemodialysis subjects and assess effectiveness of STP also to find association between pre-test knowledge and selected demographic variables.

Hence, it was necessary to conduct this study for creating awareness regarding the home management of dialysis among the caregivers of hemodialysis subjects to improve their knowledge.

MATERIALS AND METHODS

The secondary data available were used for the study purpose. The evaluative approach was used; one group pre-test and post-test design was used. The study was conducted on sample of 40 caregivers of hemodialysis subjects using convenient sampling technique.

Statistical Methods

The secondary data available were analyzed using the SPSS version 20.0 with regard to objectives of the study using descriptive and inferential statistics. Descriptive statistics, namely frequency and percentage, were done. *t*-test was used to check the effectiveness of STP and Chi-square test was used to check the association between selected demographic variables and pre-test knowledge of caregivers of the hemodialysis subjects.

RESULTS

Table 1 shows the frequency and percentage distribution of caregivers of hemodialysis subjects according to sociodemographic parameters. Table 2 shows the comparison of pre-test and post-test knowledge of the caregivers of hemodialysis subjects on home care management of hemodialysis subjects. The pre-test data depict that majority of the caregivers of hemodialysis subjects, 22 (55%) had good level of knowledge about home care management of hemodialysis subjects, whereas 16 (40%) of the caregivers of hemodialysis subjects had poor level of knowledge and only 2 (5%) of the caregivers of hemodialysis subjects had excellent knowledge regarding home care management

Table 1: Frequency and percentage distribution of caregivers of hemodialysis subjects according to sociodemographic parameters, *n*=40

Sociodemographic variables	*n* (%)
Age (years)	
18–25	4 (10.00)
26–35	6 (15.00)
37–45	15 (37.50)
46–55	15 (37.50)
Educational qualification	
Illiterate	12 (30.00)
Primary	18 (45.00)
Secondary	9 (22.50)
Higher	1 (2.50)
Type of family	
Joint	14 (35.00)
Nuclear	19 (47.50)
Separate	6 (15.00)
Other	1 (2.50)
Occupation	
Farmer	13 (32.50)
Service	16 (40.00)
Business	7 (17.50)
Housewife	4 (10.00)
Marital status	
Married	27 (67.50)
Unmarried	5 (12.50)
Widower	4 (10.00)
Divorce	4 (10.00)

Table 2: Comparison of pre-test and post-test knowledge scores of the caregivers of hemodialysis subjects regarding home care management of hemodialysis subjects

Level of knowledge	Score	Pre-test	Post-test
		Frequency (%)	Frequency (%)
Poor	0–8	16 (40.00)	0 (0.00)
Good	9–16	22 (55.00)	5 (12.50)
Excellent	17–24	2 (5.00)	35 (87.50)
Total		40 (100.00)	40 (100.00)

of hemodialysis subjects before administration of self-instructional module.

The post-test data depict that, majority of the caregivers of hemodialysis subjects, 35 (87.5%) had excellent level of knowledge about home care management of hemodialysis subjects, whereas 5 (12.5%) of the caregivers of hemodialysis subjects had good level of knowledge and none 0 (0%) of the caregivers of hemodialysis subjects had poor knowledge regarding home care management of hemodialysis subjects after administration of self-instructional module.

Effectiveness of Self-instructional Module Regarding the Home Care Management of Hemodialysis Subjects among Caregivers

The paired *t*-test was used to test the hypothesis and significant difference in the level of knowledge between pre-test and post-test by the caregivers of hemodialysis subjects regarding home care management of hemodialysis subjects and is significant ($P < 0.0001$).

Table 3 depicts the mean and standard deviation of knowledge score obtained before and after the administration of the self-instructional module. This is considered to be extremely significant, indicates significant improvement in knowledge regarding home care management of hemodialysis subjects.

Table 4 shows the association of knowledge level of the caregivers of hemodialysis subjects regarding home care management of hemodialysis subjects before administering the self-instructional module with their selected demographical variables, using Chi-square test. The analysis revealed that no association could be found with any demographic variables and pre-test knowledge ($P > 0.05$).

DISCUSSION

In our study, pre-test data depict that majority of the caregivers of hemodialysis subjects, 22 (55%) had good level of knowledge about home care management of hemodialysis subjects, whereas 16 (40%) of the caregivers of hemodialysis subjects had poor level of knowledge and only 2 (5%) of the caregivers of hemodialysis subjects had excellent knowledge regarding home care management of hemodialysis subjects before administration of STP. In our study, post-test data depict that, majority of the caregivers of hemodialysis subjects, 35 (87.5%) had excellent level of knowledge about home care management of hemodialysis subjects, whereas 5 (12.5%) of the caregivers of hemodialysis subjects had good level of knowledge and none 0 (0%) of the caregivers of hemodialysis subjects had poor knowledge regarding home care management of hemodialysis subjects after administration of self-instructional module. Furthermore, it was found that no association could be found with any demographic variables and pre-test knowledge ($P > 0.05$)

The present study is supported by the findings of a study conducted by Kaur *et al*., 2015. The result showed that no one had excellent knowledge, 19% were having good knowledge, 50% had average knowledge, 29% had poor knowledge, and 2% was deemed very poor knowledge.[9] The above finding showed that most of the caregivers of chronic renal failure patients undergoing hemodialysis had inadequate and moderately adequate knowledge regarding post-dialysis home care.[10,11] Overall, there was poor knowledge among caregivers about home care and awareness programs should be carried out to enhance the same. Post-test results were supported by findings of the study conducted by Lydia and

Table 3: Determining the difference in knowledge of the caregivers of hemodialysis subjects regarding home care management of hemodialysis subjects

Pre-test			Post-test			Mean gain percentage	t-statistic	*P*- value
Mean	Mean percentage	SD	Mean	Mean percentage	SD			
9.48	39.48	3.32	19.80	82.50	2.26	43.02	16.16	<0.0001

Table 4: Association between demographic variables and pre-test knowledge score level of the caregivers of hemodialysis subjects on home care management of hemodialysis subjects

Sociodemographic variables	*n* (%)	Pre-test knowledge			Chi-square	*P*-value
		Poor	Good	Excellent		
		n (%)	*n* (%)	*n* (%)		
Age (years)						
18–25	4 (10)	2 (50.00)	2 (50.00)	0 (0.00)	2.96	0.82
26–35	6 (15)	2 (33.33)	3 (50.00)	1 (16.67)		
37–45	15 (37.5)	6 (40.00)	9 (60.00)	0 (0.00)		
46–55	15 (37.5)	6 (40.00)	8 (53.33)	1 (6.67)		
Educational qualification						
Illiterate	12 (30)	3 (25.00)	9 (75.00)	0 (0.00)	4.69	0.58
Primary	18 (45)	9 (50.00)	8 (44.44)	1 (5.56)		
Secondary	9 (22.5)	4 (44.44)	4 (44.44)	1 (11.11)		
Higher	1 (2.5)	0 (0.00)	1 (100.00)	0 (0.00)		
Type of family						
Joint	14 (35)	4 (28.57)	9 (64.29)	1 (7.14)	3.55	0.74
Nuclear	19 (47.5)	8 (42.11)	10 (52.63)	1 (5.26)		
Separate	6 (15)	4 (66.67)	2 (33.33)	0 (0.00)		
Other	1 (2.5)	0 (0.00)	1 (100.00)	0 (0.00)		
Occupation						
Farmer	13 (32.5)	6 (46.15)	7 (53.85)	0 (0.00)	9.61	0.14
Service	16 (40)	5 (31.25)	10 (62.50)	1 (6.25)		
Business	7 (17.5)	5 (71.43)	1 (14.29)	1 (14.29)		
Housewife	4 (10)	0 (0.00)	4 (100.00)	0 (0.00)		
Marital status						
Married	27 (67.5)	7 (25.93)	18 (66.67)	2 (7.41)	7.43	0.28
Unmarried	5 (12.5)	3 (60.00)	2 (40.00)	0 (0.00)		
Widower	4 (10)	3 (75.00)	1 (25.00)	0 (0.00)		
Divorce	4 (10)	3 (75.00)	1 (25.00)	0 (0.00)		

N.S: Not significant S: Significant at $P<0.05$ level

Jayalakshmi, 2016, result in post-test, all of the caregivers of patients on hemodialysis had good knowledge (score 17–24) regarding home care management of hemodialysis patients. This shows that there is improvement in knowledge of caregivers of hemodialysis patients.[11] Hence, STP is effective method to enhance the knowledge of caregivers about home care management of hemodialysis patients.[12] The result regarding association between knowledge and demographic variables was not supported by the study conducted by John, 2016. The Z test reveals that there is a significant association between 57 educational status, source of knowledge, duration of hemodialysis, and the pre-test knowledge score.[13] This may be due to difference in region and available factors for caregivers.

The study helped the caregivers with STP regarding methods and techniques about care of hemodialysis patients which was the strength of the present study. It helped to enhance their confidence for aspects which were unknown to them. The study only assessed 40 caregivers available, a large number of samples could not be taken due to the time constraints. The study was limited to one institution around the area; if it can be conducted at most of multispecialty hospitals, it will be really helpful for the patients and their family.

The mean knowledge score of caregivers of hemodialysis subjects during the pre-test was 39.48%, whereas it had raised up to 82.50% during the post-test as an effectiveness of STP. Therefore, the difference assessed was 43.02% between

pre-test and post-test. Hence, health education programs and on-going teaching both can further improve the knowledge of caregivers.

CONCLUSION

From the data analysis and findings of the present study, it is concluded that there was significant difference between the pre-test knowledge level and post-test knowledge level of caregivers on home care management of hemodialysis subjects. The mean knowledge score of caregivers of hemodialysis subjects during the pre-test was 39.48%, whereas it had raised up to 82.50% during the post-test as an effectiveness of STP. Therefore, the difference assessed was 43.02% between pre-test and post-test. Hence, health education programs and on-going teaching both can further improve the knowledge of caregivers.

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