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Assessment of problems faced by patients with arteriovenous fistula and the effect of information booklet on knowledge of homecare management of arteriovenous fistula among hemodialysis atients of a selected hospital, Kolkata

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Abstract
Background: Arteriovenous fistula has proven to be the best kind of permanent vascular access for people who are receiving hemodialysis. It is important to take care of the vascular access to prevent complications.
Materials and methods: An Pre experimental study was conducted to find out the effect of an information booklet on knowledge of homecare management of arteriovenous fistula among hemodialysis patients along with identification of problems faced by patients with arteriovenous fistula. Data were collected by structured interview schedule from 50 hemodialysis patients had areteriovenous fistula. On 1st day patients were asked to verbalized the problems they faced followed by pretesting of knowledge on home care management of arteriovenous fistula. Then Patients were handed over an information booklet and explained. On the eighth day posttest was taken.
Result: It has been found that the most common physiological, psychological and daily living problems faced by patients with arteriovenous fistula were swelling at fistula site, worry about finance and difficulty faced in caring shopping bags respectively. In pre-test 44% patients had average knowledge, where as in post-test 48% patients had very good knowledge about homecare management of arteri-ovenous fistula. The mean difference of pre-test and post-test knowledge score was statistically significant (t_{49} =2.0096, P< 0.05).
Conclusion: The information booklet on homecare management of arteriovenous fistula can be used as an effective patient education tool to improve knowledge. It can be used to prepare the patients for homecare management of arteriovenous fistula to prevent complication and to keep the fistula functioning.

Keywords: problems, effect, knowledge, homecare management of arteriovenous fistula

Introduction

The kidneys are bean-shaped organs that remove excess organic molecules from the blood that is the removal of waste products of metabolism [1]. renal failure is the severe impairment or total lack of kidney function [2].

As per United States renal data system, the global scenario of End Stage Renal Disease patients shows that the incidence is increasing per year. They showed that it was increasing by an average of 7.8 % per year.

The Global Burden of Disease (GBD) Chronic Kidney Disease Collaboration report a comprehensive analysis of the global prevalence and burden of CKD. In 2017, the global prevalence of CKD was 9·1% (95% uncertainty interval [UI] 8·5 to 9·8), which is roughly 700 million cases [3].

The GBD 2015 study also estimated that, in 2015, 1.2 million people died from kidney failure, an increase of 32% since 2005 [4].

In medicine, dialysis is primarily used to provide an artificial replacement for lost kidney function due to renal failure [5]. the preferred access is the arteriovenous fistula that is the direct connection between an artery and a vein [6]

Hara Yuuta. *et al*l conducted a study on Influence of arteriovenous fistula on daily living behaviors involving the upper limbs in hemodialysis patients. They reported that during non-dialysis, the difficulty scores of behaviors Restricted out of concern for arteriovenous fistula obstruction increased. The difficulties of "write" and "eat or drink" were significantly higher in the dominant arm arteriovenous fistula group (both $P < 0.05$) [7].

Pandey, S. A. conducted a descriptive study to explore the knowledge of arteriovenous fistula care among 50 hemodialysis patients of Human Organ Transplant Center Bhaktapur Nepal. It was found that majority of the respondent (74%) had adequate knowledge whereas 24% of respondents had moderate knowledge regarding care of AV fistula.8 so, there was gap in knowledge about the care of arteriovenous fistula among patients with arteriovenous fistula and that leads to the complications of the vascular access.

So this study was aimed to assess the problems faced by patients with arteriovenous fistula and effect of information booklet on home care management of arteriovenous fistula among hemodialysis patients.

2. Methodology

A pre-experimental study with one group pretest posttest design was adopted to find out the effect of an information booklet on knowledge of homecare management of arteriovenous fistula among hemodialysis patients along with identification of problems faced by patients with arteriovenous fistula

The symbolic presentation of research design:

PK1 ⟶ X ⟶ K2

Interpretation of symbols are as follows
P- Problem identification
K1- Pretest knowledge
X- Information Booklet
K2- Post test knowledge

Inclusion criteria
1. Hemodialysis patients with Arteriovenous Fistula who were willing to participate.
2. Patients who were present during the time of data collection.

Exclusion criteria
Hemodialysis patients with Arteriovenous Fistula:
1. Patients who were critically ill.
2. Patients who were having mental disorder.
3. Patients who were not willing to participant.

Materials and Methods
Ethical committee & administrative permission were sought. Subject information, confidentiality & anonymity were maintained. Informed consent was taken from each participant.
A pre-experimental study with one group pretest posttest design was adopted was carried out to find out the effect of an information booklet on knowledge of homecare management of arteriovenous fistula among hemodialysis patients along with identification of problems faced by patients with arteriovenous fistula.,This study was conducted at Dialysis unit of Rabindranath Tagore International Institute for Cardiac Sciences. During data collection period 25 – 30 patients were available in the dialysis unit. Everyday 5 patients were selected by randomized sample technique by using simple random number during morning shift. Sample were selected and data were collected for 4 weeks. So total 75 patients were selected Out of 75 selected patients, 12 patients did not go through the information booklet due to some personal & illness problems and 13 participants were not available on 8th day (posttest) .So 50 patients were considered as final sample. Data were collected through interview schedule which consisted three sections. Section one consisted of demographic information & illness profile, section two consisted of items on problems faced by the patients & section three consisted of items on knowledge of home care management of arteriovenous fistula. Tools were tested for face validity & content validity by nine experts. CVI was 0.98. The reliability of first two sections of tool were established by equivalency and was calculated by percentage of agreement and Cohen's kappa respectively and result was 1. Reliability of third section of tool was established by internal consistency was calculated by split half method and result was 0.80.Hence the tool was found valid and reliable for the purpose of the study.

3. Result

Table 1: Frequency and percentage distribution of patients according to age, sex, marital status, education, occupation, family income

Sl. No	Item	Frequency	Percentage (%)
1	Age(years)		
	▪ 18-40	20	40
	▪ 41-60	14	28
	▪ 61-80	16	32
2	Sex		
	▪ Male	32	64
	▪ Female	18	36
3	Marital status		
	▪ Married	34	68
	▪ Unmarried	13	26
	▪ Widow/Widower	2	04
	▪ Divorced	1	02
4	Education		
	▪ Below 10th standard	2	04
	▪ 10th standard	7	14
	▪ 12th standard	14	28
	▪ Graduation	21	42
	▪ Post-graduation	6	12
5	Occupation		
	▪ Service	18	36
	▪ Business	5	10
	▪ Retired	10	20
	▪ Housewife	14	28
	▪ Other	3	06
6	Total family income per month		
	▪ 10,001- 20,000/-	13	26
	▪ >20,000/-	37	74

Table 1 shows that out of 50 patients, 40% patients were within the age group of 18 years to 40 years. 64% patients were male. 68% patients were married. 42% patients were graduate. 36% patients were service holder. 74% patients had a family income more than 20,000/- per month

Table 2: Distribution of participants in terms of their illness profile N=50

Sl. No	Characteristics	Frequency	Percentage
1.	**Duration of illness**		
	▪ < 3 months	1	2
	▪ 3 months -1year	9	18
	▪ 1-5 year	26	52
	▪ > 5 years	9	18
2.	duration of hemodialysis		
	▪ <1 year	18	36
	▪ 1-2 years	11	22
	▪ 2-3 years	8	16
	▪ >3 years	13	26
3.	Number of dialysis per week		
	▪ 2 times /wk	30	60
	▪ 3 times/wk	20	40

4.	Duration of arteriovenous fistula		
	▪ 1-6 months	8	16
	▪ 6-12 months	7	14
	▪ >12 months	35	70
5.	Number of admissions with complication of arteriovenous fistula		
	▪ Never	43	86
	▪ 1 time	6	12
	▪ 2-3 times	1	2
6.	site of arteriovenous fistula		
	▪ Right Hand	10	20
	▪ Left Hand	40	80
7.	Other Comormod diseases		
	▪ Hypertension	32	64
	▪ Diabetes	6	12
	▪ Hypertension & Diabetes	12	24

Table-2 shows that out of 50 patients, 52% patients were suffering from kidney disease from 1-5 years..36% patients were under hemodialysis less than 1yr. 60% patients were getting hemodialysis twice a week.70% patients had arteriovenous fistula from more than 12months. 80% patients had fistula in their left hand.86% patients were never admitted to hospital with complication of arteriovenous fistula. 64% patients had hypertension.

Table 3: Frequency and percentage distribution of problems faced by the patients with arteriovenous fistula N=50

Rank. No	Problems faced by the patients with arteriovenous fistula	Frequency
A	Physiological problems	
1	Swelling	25
2	Itching	24
3	Pain	18
4	Tingling sensation in the fingers	14
5	Redness	13
6	Frequent fever	3
7	Bleeding	2
B	Psychological problems	
1	Worry about finance	41
2	Anxiety about future	40
3	Hopelessness	40
4	Loss of independence	40
5	Depression	39
6	Family burden	38
7	Fear about death	37
C	Daily living problems	
1	Difficulty to carry shopping bags	48
2	Difficulty to engage in all daily activities	47
3	Difficulty to carry luggage	47
4	Difficulty to perform laborious activity	47
5	Difficulty in sleeping	40
6	Difficulty in washing clothes	39

*All data are not mutually exclusive

Table 3 shows that the most common physiological, psychological and daily living problems faced by patients with Arteriovenous fistula were swelling at fistula site, worry about finance and difficulty faced in caring shopping bags respectively

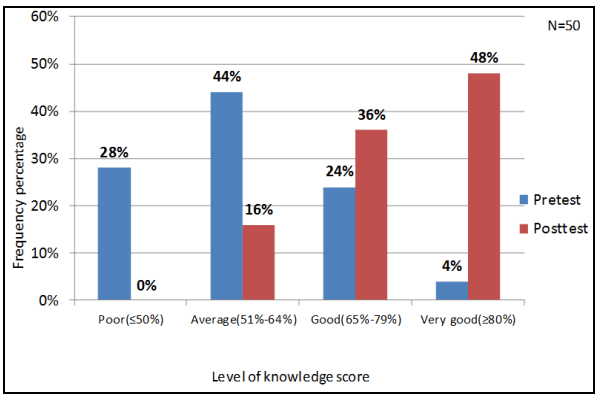

Fig 1: Distribution of patients according to pretest and posttest knowledge score

figure 1 shows that in pre-test 44% patients had average knowledge, where as in post-test 48% patients had very good knowledge about homecare management of arteri-ovenous fistula.

Table 4: Mean, Mean difference, Standard Deviation of difference, Standard error of mean and 't' value of pretest and posttest knowledge score of sample N=50

Particular	Mean	Mean difference	SD_D	SE_M	T
Pre test	14.74				
		4.56	2.66	0.38	12.05*
Post test	19.3				

$t_{(49)}$= 2.0096, P<0.05

The data presented in table 4 shows that the mean posttest knowledge score (19.3) was significantly higher than the mean pretest knowledge score (14.74) with a mean difference of 4.56 which was found to be statistically significant as evident from (table value) 't' value (12.05) for degree of freedom (df) 49 at 0.05 level of significance.

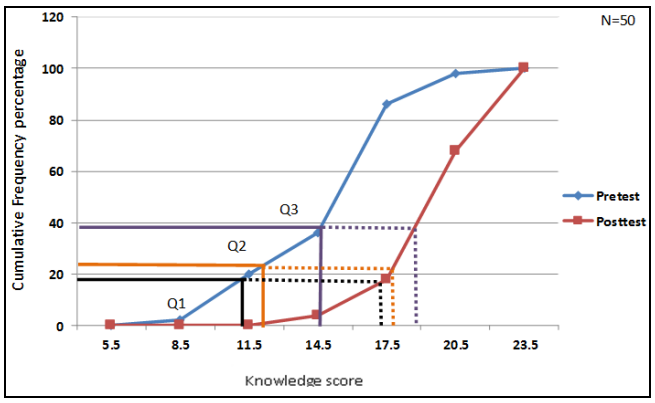

Fig 2: Cumulative frequency percentage curve (Ogive) of pre-test and post-test knowledge score

The 25th percentile Q1 of pretest and post-test were 11.4 & 17.5, 50th percentile Q2 of pretest and posttest were 12.5 & 18.5, 75th percentile Q3 of pretest and post-test were 14.5 & 19. So the 25th percentile of posttest knowledge scores (17.5) fell beyond the 75th percentile of pretest knowledge score (14.5). It indicated appreciable gain in knowledge among participants after administration of information booklet.

Table 5: Chi square value and their significance between the pretest knowledge score of patients and selected factors N=50

sl. no	Selected factors	χ^2	df	α level	Table value
1.	Age	0.17	2	0.05	5.99
2.	Education	1.56	4	0.05	9.49
3.	Duration of undergoing hemodialysis	2.82	3	0.05	7.82
4.	Duration of arteriovenous fistula	1.24	2	0.05	5.99
5.	No of admission with complication	1.42	1	0.05	3.84

Data represented in the table 5 shows there was no association between pretest knowledge score and selected factors at 0.05 level of significance.

Table 6: Co-relation co-efficient value showing the relationship between pretest knowledge score and problems faced by patients with arteriovenous fistula.

Sl. No.	Problems faced by patients with arteriovenous fistula	"r"	df	α level	Table value
1	Physiological problems	-0.202			
2	Psychological problems	0.013	48	0.05	0.273
3	Daily living problems	-0.090			

The data presented in table 6 shows that There is no relationship found between existed mean pretest knowledge score and the psychological problems they faced. Whereas mean pretest knowledge score is significantly negatively correlated with physiological problems and daily living problems. So the patients had poor knowledge suffering from more physiological problems and daily living problems.

4. Discussion

In the present study 80% of patients faced anxiety and 94% of patients faced difficulty to engage in all daily activities.

The present study is supported by a study conducted by Maiorca R. *et al*. on the psychological and social problems faced by hemodialysis patients. The study showed anxiety about future was the medium problem and restriction for physical activity was a medium to high problem [9].

In the present study in pretest 28% of patients had poor knowledge, 44% had average knowledge, 24% had good knowledge and 4% had very good knowledge regarding on homecare management of arteriovenous fistula.

The present study was supported by the study conducted by Pessoa N.R.C. *et al* in Baroa de Lucena Hospital, 2013 on knowledge, attitude and practice of hemodialysis patients regarding self-care of A.V. fistula. The study result shown that 97.7% of patients had inadequate knowledge regarding selfcare of arteriovenous fistula [10].

5. Conclusion

The most common physiological, psychological and daily living problems faced by the patients with arteriovenous fistula were swelling, worry about finance, difficulty to carry shopping bags respectively. There was no relationship between pretest knowledge score and problems faced by patients with arteriovenous fistula. From the study it can be concluded that information booklet on homecare management of arteriovenous fistula was effective in increasing knowledge among hemodialysis patients with arteriovenous fistula as the computed 't' test is significant at 0.05 level. The information booklet on homecare management of arteriovenous fistula among hemodialysis patients with arteriovenous fistula can be used as an effective teaching strategy to improve knowledge.

6. Authors Contribution

Pattanayak Kathika conceived the study, designed methodology, organize & contributed in data analysis, guiding treatment administration, supervise the research work & correction of manuscript.

Ghosh Nibedita wrote proposal, plan & executed the experimentation, data collection,data management & reporting, constructed the manuscript .

Mandal K did substantive contribution in constructing the idea, planning research desig, took responsibilities in logical interpretation and presentation of results, finalization of Research.
Manna Madhusri contributed towards sampling process, tool development, research design and development of treatment.
All authors provided critical feedback and helped shaping the research, analysis and manuscript.

7. Source of funding
Self

8. Conflicts of interest
None

References
1. Tortora GD, Derrickson B. Principles of Anatomy and Physiology. United States of America; John Wiley & Sons, 2007.
2. Suzanne CS, Brenda G, Brunar Suddarth's B. Text book of Medical Surgical Nursing. Philadelphia; Lippincott publishers, 2009.
3. GBD Chronic Kidney Disease Collaboration. Global, regional, and national burden of chronic kidney disease, a systematic analysis for the Global Burden of Disease Study, 2017, 1990-2017. Published online Feb 13. https://doi.org/10.1016/ S0140-6736(20)30045-3.)
4. Wang H, Naghavi M, Allen C, Barber RM, Bhutta ZA, Carter A, *et al*. GBD 2015 Mortality and Causes of Death Collaborators. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016; 388(10053):1459-544. http://dx.doi.org/10. 1016/S0140-6736(16)31012-1 pmid: 27733281
5. Murray PT, Brady HR, Hall JB. Intensive care in Nephrology. London; Taylor & Francis, 2006.
6. Black JM, Hawks JHmedical surgical nursing. Philadelphia; W. B Saunders Company, 2001.
7. Hara Yuuta, Sonoda Kosuke, Hashimoto Koji, Fuji Kazuaki, Yamada Yosuke, Kamijo Yuji Influence of arteriovenous fistula on daily living behaviors involving the upper limbs in hemodialysis patients: a cross-sectional questionnaire study. *BMC Nephrology*, 2018, 19(284).
8. Pandey SA. Knowledge regarding care of arteriovenous fistula among hemodialysis patients in Nepal. Journal of Nursing & Care, 2010, 21(6).
9. Maiorca G. Psychological and social problems of dialysis. Available from https://academic.oup.com
10. Pessoa RC. Hemodialysis patients with Arteriovenous fistula: Knowledge, attitude and practice [Internet], 2013. Available from: www. scielo.br