TREATMENT ADHERENCE AMONG PATIENTS UNDERGOING HAEMODIALYSIS OF SELECTED HOSPITALS OF RUPANDEHI, NEPAL

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ABSTRACT

INTRODUCTION

Chronic kidney disease (CKD) is a major public health problem in Nepal. Adherence is the crucial factor in determining the morbidity and mortality of hemodialysis patients.

MATERIAL AND METHODS

A cross-sectional study was conducted to find out the haemodialysis adherence among 125 haemodialysis patients of Universal College of Medical Sciences-Teaching Hospital and Crimson Hospital, Rupandehi District, Nepal. The data was collected by enumerative sampling using semi-structured interview schedule. The duration of the study was from June 16, 2019 to August 2, 2019. The data was analyzed by using descriptive and inferential statistics with SPSS software version 16.0.

RESULTS

The study revealed 56.8% were adherent to haemodialysis in general. Likewise, 62.7%, 77.1%, 74.6% and 48.3% were adherent to haemodialysis schedule, diet restriction, fluid restriction and medication respectively. There was statistically significant association between level of adherence to haemodialysis and education level (p=0.020), adequacy of family monthly income for haemodialysis (p=0.007), presence of care taker to haemodialysis centre (p=0.057) and haemodialysis hours in a session (p=0.002).

CONCLUSION

It is concluded that the haemodialysis adherence among patients is good in general but poor adherence to medicine. The adherence is influenced by education, family monthly income, presence of care taker and haemodialysis hours in a session. Hence it emphasizes on need for educating patients to enhance adherence to haemodialysis.

KEYWORDS Adherence, Haemodialysis, Patients.

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DOI: http//doi.org/10.3126/jucms.v8i02.34297

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INTRODUCTION

Chronic kidney disease is a worldwide public health problem. In Nepal, chronic kidney disease patients are increasing. Around 30,000 people are suffering from kidney failure in Nepal. About 3,000 new patients are added each year. There are nearly 39 dialysis centres in Nepal to provide dialysis services. Out of this, about 24 services are outside the Kathmandu Valley.[1] When kidney disease progresses, it leads to kidney failure which requires dialysis. Dialysis is the process of cleaning the blood by removing waste and toxic products with excess water.[2] The chronic kidney disease entails significant changes in the patients' life. Adherence to treatment regimen plays a role in the management of chronic kidney disease.[3] Non-adherence to haemodialysis treatment regimens is leading to disease deterioration and high healthcare expenditure.[4] Adherence is the crucial factor in determining the morbidity and mortality of haemodialysis patients. Four important areas to find out the level of adherence are haemodialysis schedule, fluid restriction, diet restriction and medicine adherence.[5] This study was conducted to find out the level of haemodialysis treatment adherence among haemodialysis patients and to find out the association between haemodialysis treatment adherence and socio-demographic characteristics and patients' clinical information.

MATERIAL AND METHODS

A descriptive cross-sectional study was conducted among haemodialysis patients in dialysis unit of Universal College of Medical Sciences and Teaching Hospital (UCMS-TH) and Crimson Hospital, Rupandehi district, Nepal. Ethical approval was obtained from Institutional Review Committee of Universal College of Medical Sciences. Administrative approval was obtained from UCMS-TH and Crimson Hospital. Written informed consent was obtained voluntarily from each respondent by clarifying the objectives of the study. The patients who had completed dialysis session at least three and more than three months of dialysis were included in the study. The patients who were at the age of <14 years and who were unable to involve in the study due to deteriorated health condition are excluded.

The enumerative sampling method was used. The sample size was 125. Only 118 patients were included during the period of data collection of the study because of sample mortality. The data was collected by using semi-structured interview schedule. It was developed based on End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ) and literature review. It included questions related to socio-demographic characteristics, haemodialysis schedule, dietary restriction, fluid restriction, medicine adherence and clinical information of patients (inter-dialytic dry weight gain, serum potassium and serum phosphorus). The high phosphorus in blood is risk to heart. The phosphorus control can be done by diet restriction and phosphorus binding treatment. The data was analysed by using descriptive and inferential statistics with SPSS software version 16.0.

RESULTS

Table 1. Patients' socio-demographic characteristics (n=118)

Variables	Frequency	Percentage
Age (in years)		
<20 years	4	3.4
20-39 years	34	28.8
40-59 years	53	44.9
60 and above	27	22.9
Mean± SD = 47.53± 15.05		
Sex		
Male	72	61.0
Female	46	39.0
Residence		
Urban	50	42.4
Rural	68	57.6
Type of Family		
Nuclear	60	50.8
Joint	58	49.2
Education status		
Illiterate	31	26.3
Basic education	39	33.1
Secondary education	39	33.1
Higher education and above	9	7.6
Marital status		
Unmarried	11	9.3
Living with spouse	97	82.2
Single	10	8.5
Current employment status		
Unemployed	115	97.5
Employed	3	2.5
Adequacy of family monthly income for haemodialysis		
Adequate	44	37.3
Inadequate	74	62.7
Availability of transportation for haemodialysis centre		
Yes	115	97.5
No	3	2.5
Duration of time to reach haemodialysis centre		
<2 hours	103	87.3
2-4 hours	15	12.7
Presence of care taker to hemodialysis centre		
Yes	95	80.5
No	23	19.5

Table 1 shows 28.8% of the respondents were in the age group of 20-39 years and 44.9% were of 40-59 years. The mean age

of respondents was 47.53. Among them 61% were male and 39% were female. Likewise, 42.4% were living in urban and 57.6% were in rural, 50.8% were from nuclear family and 49.2% were from joint family. Regarding education 33.1% were educated in basic and secondary level. About 82.2% were living with couple and 97.5% were unemployed and only 2.5% were employed. Likewise, 62.2% had inadequate family monthly income for haemodialysis, 97.5% had transportation availability, 87.3% had taken <2 hours and 80.5% had care taker to reach haemodialysis centre.

Table 2. Patients' general clinical information (n=118)

Variables	Frequency	Percentage
Co-morbidity		
Yes	105	89.0
No	13	11.0
Duration of haemodialysis treatment		
<12 months	57	48.3
12-24 months	33	28.0
25-36 months	22	18.6
>36 months	6	5.1
Frequency of haemodialysis in a week		
1 time	7	5.9
2 times	97	82.2
3 times	14	11.9
Haemodialysis treatment hours in a session		
3 hours	7	5.9
4 hours	111	94.1

Table 2 shows 89% of respondents had co-morbidity and 48.3% had <12 months and 28% had 12-24 months as the duration of haemodialysis treatment. Likewise, 82.2% had two times haemodialysis in a week and 94.1% had four hours in a session of haemodialysis treatment.

Table 3. Patients' haemodialysis adherence (n=118)

Areas of haemodialysis adherence	Adherence	Non-adherence
Haemodialysis schedule	74 (62.7%)	44 (37.3%)
Diet restriction	91 (77.1%)	27 (22.9%)
Fluid restriction	88 (74.6%)	30 (25.4%)
Medication adherence	57 (48.3%)	61 (51.7%)
Haemodialysis adherence (in general)	67 (56.8%)	51 (43.2%)

Table 3 shows 62.7% of the respondents were adherent and 37.3% were non-adherent to haemodialysis schedule, 77.1% of the respondents were adherent and 22.9% were non-adherent to diet restriction, 74.6% of the respondents were adherent and 25.4% were non-adherent to fluid restriction, 48.3% of the respondents were adherent and 51.7% were non-adherent to medication. Likewise, 56.8% of the respondents were adherent and 43.2% were non-adherent to haemodialysis in general.

Table 4. Association between haemodialysis adherence and socio-demographic characteristics (n=118)

Variables	Level of Adherence		$\chi 2$	*p*-value
	Adherent No. (%)	Non-adherent No. (%)		
Age (In years)				
<20 years	3 (75)	1 (25)		
20-39 years	19 (55.9)	15 (44.1)	2.363	0.500
40-59 years	27 (50.9)	26 (49.1)		
60 and above	18 (66.7)	9 (33.3)		
Sex				
Male	45 (62.5)	27 (37.5)	2.463	0.117
Female	22 (47.8)	24 (52.2)		
Education level				
Illiterate	12 (38.7)	19 (61.3)		
Basic education	20 (51.3)	19 (48.7)	9.875	0.020*
Secondary education	29 (74.4)	10 (25.6)		
Higher education and above	6 (66.7)	3 (33.3)		
Marital status				
Unmarried	8 (72.7)	3 (27.3)	2.288	0.319
Living with spouse	55 (56.7)	42 (43.3)		
Single	4 (40.0)	6 (60.0)		
Current employment status				
Unemployed	66 (57.4)	49 (42.6)	0.690	0.406
Employed	1 (33.3)	2 (66.7)		
Adequacy of family monthly income for haemodialysis				
Adequate	32 (72.7)	12 (27.3)	7.271	0.007*
Inadequate	35 (47.3)	39 (52.7)		
Availability of transportation for haemodialysis centre				
Yes	66 (57.4)	49 (42.6)	0.690	0.406
No	1 (33.3)	2 (66.7)		
Duration of time to haemodialysis centre				
<2 hours	61 (59.2)	42 (40.8)	1.972	0.160
2-4 hours	6 (40.0)	9 (60.0)		
Presence of care taker to haemodialysis centre				
Yes	58 (61.1)	37 (38.9)	3.626	0.057*
No	9 (39.1)	14 (60.9)		

Pearson Chi Square ($\chi 2$) Test *: *p* value significant at ≤0.05 level

Table 4 shows that there was statistically significant association between haemodialysis adherence and education level (p=0.020), adequacy of family monthly income for haemodialysis (p=0.007) and presence of care taker to haemodialysis centre (p=0.057). But there was no statistically significant association between haemodialysis adherence and age (p=0.500), sex (p=0.117), marital status (p=0.319), current employment status (p=0.406), availability of transportation for haemodialysis centre (p=0.406) and duration of time to haemodialysis centre (p=0.160).

Table 5. Association between haemodialysis adherence and patients' clinical information (n=118)

Variables	Level of Adherence		$\chi 2$	*p*-value
	Adherent No. (%)	Non - adherent No. (%)		
Co-morbidity				
Yes	61 (58.1)	44 (41.9)	0.672	0.412
No	6 (46.2)	7 (53.8)		
Duration of haemodialysis treatment				
<12 months	30 (52.6)	27 (47.4)	5.576	0.134
12-24 months	24 (72.7)	9 (27.3)		
25-36 months	11 (50.0)	11 (50.0)		
>36 months	2 (33.3)	4 (66.7)		
Frequency of haemodialysis in a week				
1 time	4 (57.1)	3 (42.9)	1.262	0.532
2 times	57 (58.8)	40 (41.2)		
3 times	6 (42.9)	8 (57.1)		
Haemodialysis treatment hours in a session				
3 hours	0 (0.0)	7 (100)	9.776	0.002*
4 hours	67 (60.4)	44 (39.6)		

Pearson chi square ($\chi 2$) Test *: *p* value significant at ≤0.05 level

Table 5 shows that there was statistically significant association between level of adherence and haemodialysis treatment hours in a session (p=0.002) but there was not statistically significant association between level of adherence and co-morbidity (p=0.412), duration of haemodialysis treatment (p=0.134) and frequency of haemodialysis in a week (p=0.532).

DISCUSSION

The study results show that 44.9% were in the age group of 40-59 years which is consistent with the study conducted by Nakao RT, et al (2016) in Brazil which shows 48% were 40-60 years.[6] The findings of the study showed that 61% were male, 39% were female and 33.1% were educated in basic which is consistent with the study conducted by Alikari V, et al (2017) in Greece which shows 66% of patients were males, 34% were females and 33% were educated in basic level. The findings of the study showed that 8.5% were living single which is not consistent with same study conducted by Alikari V, et al which shows 16% were living single.[7] As such 82.2% were living with spouse.

The findings of the study showed that 97.5% were unemployed, only 2.5% were employed, 62.2% had inadequate family monthly income for haemodialysis and 48.3% had <12 months as the duration of haemodialysis treatment which is not consistent with the study conducted by Katiwada N[5] in Kathmandu, Nepal which shows 72.9% were unemployed, 18.1% were employed and 46.4% had inadequate family monthly income and 30.1% had <12 months as the duration of haemodialysis treatment.[5] It is as to difference in socio-demographic profile of study areas. Likewise, 97.5% had transportation availability, 87.3% had taken <2 hours and 80.5% had care taker to reach haemodialysis centre. The findings of the study showed that 89% had co-morbidity. Likewise, 82.2% had two times haemodialysis in a week which is consistent with the study conducted by Katiwada N, which shows 86.1%.[5] It may be due to similar disease condition and of patients as a sample. The findings of the study showed that 94.1% had 4 hours in a session of haemodialysis treatment which is not consistent with the study conducted by Mukakarangwa MC, et al (2016) in Rwanda which shows cent percent (100%).[8]

The study shows that adherence to haemodialysis schedule was 62.7%, adherence to dietary restriction was 77.1%, adherence to fluid restriction was 74.6%, adherence to medicine was 48.3% and in general adherence to haemodialysis 56.8% which is not consistent with the study conducted by Nakao RT, et al (2016) in Brazil which shows adherence to haemodialysis schedule was 54%, adherence to dietary restriction was 39%, adherence to fluid restriction was 31% and adherence to medicine was 56% and in general adherence to haemodialysis was 20%.[6] It is as to difference of sample size.

The results showed that there was statistically significant association between haemodialysis adherence and education level (p=0.020) which is consistent with the study conducted by Alikari V, et al which shows the educational level was associated with the haemodialysis adherence (p=0.001).[7] There was not statistically significant association between level of haemodialysis adherence and age (p=0.500), sex (p=0.117), marital status (p=0.319) and current employment status (p=0.406). There was statistically significant association between level of adherence and adequacy of family monthly income for haemodialysis (p=0.007), presence of care taker to come to haemodialysis centre (p=0.057), haemodialysis treatment hours in a session (p=0.002) and statistically significant association between haemodialysis schedule adherence and haemodialysis treatment hours in a session (p=0.054).

CONCLUSION

Based on the results, the haemodialysis adherence, haemodialysis schedule, diet restriction adherence and fluid restriction adherence is found good among patients undergoing haemodialysis but poor medicine adherence among them. The haemodialysis adherence is influenced by education, adequacy of family monthly income, presence of care taker to haemodialysis centre and treatment hours in a session. It is not influenced by age, residence, co-morbidity and duration of haemodialysis. This study emphasizes on educating patients for haemodialysis schedule and medicine.

The study on assessment of associated factors to medicine adherence among haemodialysis patients should be conducted in large scale to develop the strategies for establishing effective medical adherence among dialysis patients.

ACKNOWLEDGEMENT

Researchers deeply express their heartfelt thanks to all patients and hospital staff for immense support and cooperation. Researchers express their deep and sincere gratitude to all those experts for their constructive feedback and enlightening suggestions throughout the study.

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