

TREATMENT ADHERENCE IN END STAGE RENAL DISEASE USING ESRD- AQ IN A MAJOR HOSPITAL IN INDIA*Alpha Shereef¹, Jayakrishnan S.S.¹ and Sajeevkumar K.S.²¹Department of Hospital & Clinical Pharmacy, College of Pharmaceutical Sciences, Govt. Medical College, Thiruvananthapuram, Kerala, India.²Department of Nephrology, Govt. Medical College, Thiruvananthapuram, Kerala, India.

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ABSTRACT

Introduction: Chronic kidney disease (CKD) is a progressive irreversible structural damage or kidney function. It is a major metabolic disorder responsible for the increased global morbidity due to non communicable disease. End stage renal disease (ESRD) is the most serious stage. In patients with ESRD, renal replacement therapy such as long term dialysis or kidney transplantation is needed for survival. **Objective:** To assess the treatment adherence in end stage renal disease patients using ESRD-AQ. **Study design and setting:** Cross sectional study carried out in the Department of Nephrology, Govt. Medical College, Thiruvananthapuram, Kerala, India. **Study period & Population:** Six months with 88 participants and Patients those who were reported to the dialysis center during the study period. **Procedure:** Patient included in the study was asked to give an informed consent based on the IRB approval of the study. Then patients/ care giver were interviewed by using valid questionnaire. It consists of 46 questions divided into five sections. **Results & Discussion:** The number of married patients exceeded in this study. The economic status of majority of patients was in the below poverty level and most of them were from rural area. Majority of patients had 4 hours of duration of haemodialysis. Most of the patients had haemodialysis twice weekly. Most of the patients had high adherence in medication. Fluid restriction had medium adherence. Dietary recommendation had high adherence. Majority of patients (84.1%) had diabetes and hypertension as co-morbidity. **Conclusion:** Adherence to diet recommendations, fluid restrictions, prescribed medications and attendance at haemodialysis sessions were essential for optimal and effective treatment of patients with end stage renal disease. Counselling and education of patients on HD are important to improve therapeutic outcome. Treatment adherence is a dynamic behaviour therefore needs constant monitoring. Family supports are important to improve patient's adherence towards the treatment.

KEYWORDS: Adherence, Co-morbidity, Counseling, Education, ESRD, Haemodialysis, Peritoneal dialysis.**INTRODUCTION**

Chronic kidney disease (CKD) is a progressive irreversible structural damage or kidney function. It is a major metabolic disorder responsible for the increased global morbidity due to non communicable disease. End stage renal disease (ESRD) is the most serious stage. In patients with ESRD, renal replacement therapy such as long term dialysis or kidney transplantation is needed for survival. The progression of chronic kidney disease to ESRD is often associated with additional co-morbidities such as diabetes and cardiovascular disease. The major goal of drug therapy in CKD patients is to slow down the progression of disease along with correcting the associated co-morbidity.

Kidney transplantation is the best choice for management of patients with ESRD. The limited availability of organ

donors made haemodialysis (HD) procedure as most efficient and practical method for management of patients with ESRD.

Patients on long term HD are considered partially responsible for the success of their therapy by adherence to medication prescription, adherence to diet and fluid restriction and complete adherence to HD sessions. Failure of adherence in HD patients can lead to increase morbidity, mortality, cost and burden on health care system.

The current study was aimed to assess the prevalence of adherence among haemodialysis patients for different treatment modalities such as medication, diet recommendation, fluid restriction, dialysis session. This study was done in the Department of Nephrology, Govt.

Medical College, Thiruvananthapuram, Kerala, India. In this study setting till now there were no published data available on treatment adherence in end stage renal disease by using ESRD-AQ in a major hospital in India. There is no similar studies were done in this study setup.

METHODOLOGY

Objective: To assess the treatment adherence in end stage renal disease patients using ESRD-AQ.

Study Design: Cross sectional study carried out in tertiary care teaching hospital

Study Setting: Department of Nephrology, Govt. Medical College, Thiruvananthapuram, Kerala, India.

Study Period: Six months.

Study Population: Patients those who were reported to the dialysis center during the study period.

Inclusion criteria

- Patients have been on haemodialysis for at least 3 months.
- Age >18 year old.

Exclusion criteria

- Patients/ care giver not willing to participate in the study.

Sample Size: 88 participants

STUDY VARIABLES

- Diet, Medication, Fluid restrictions, Haemodialysis attendance
- Age, Gender, Education, Occupation, Clinical features, Laboratory parameters etc.

Data Collection Tool: ESRD-AQ (End Stage Renal Disease – Adherence Questionnaire). Patients case records and direct interview.

Data Collection Technique: Interview method

Study Procedure: Patient included in the study was asked to give an informed consent based on the IRB approval of the study. Then patients /care giver were interviewed by using valid questionnaire. It consists of 46 questions divided into five sections. The first section pursues general information about patients (5 items), the remaining four sections about treatment adherence to HD treatment adherence (14 items), medications (9 items), fluid restrictions (10 items), and diet recommendations (8 items).

Statistical Analysis: Data obtained were entered in to Microsoft Excel sheet. Statistical analysis was done by using SPSS version 17. Discrete variables were analyzed using chisquare and the continuous variables were analyzed by student T test.

RESULTS

Table 1: Distribution of patients according to age.

Age	Frequency	Percent
≤20	3	3.4
21-30	4	4.5
31-40	5	5.7
41-50	27	30.7
51-60	26	29.5
61-70	19	21.6
71+	4	4.5
Total	88	100

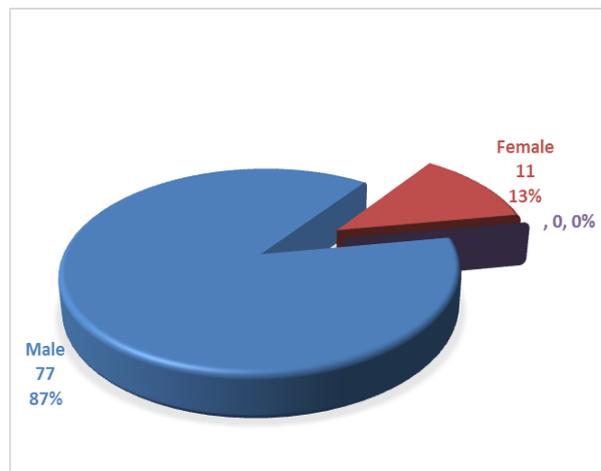


Figure 1: Percentage distribution of patients according to gender.

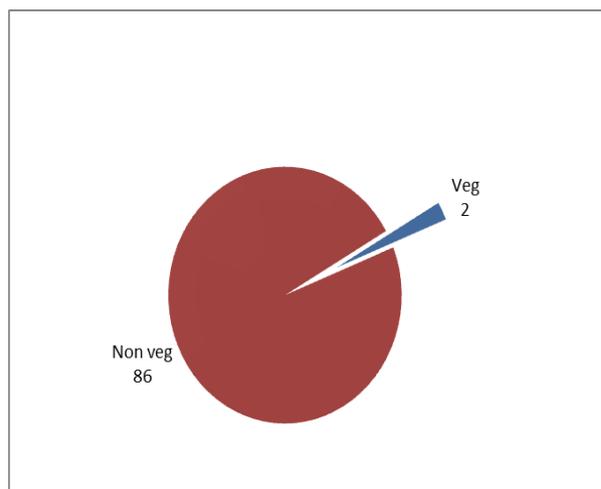


Figure 2: Percentage distribution of the patients according to Dietary habits.

Table 2: Distribution of patients according to duration of haemodialysis.

Duration of haemodialysis in hour	Frequency	Percent
2	1	1.1
3	1	1.1
4	86	97.7

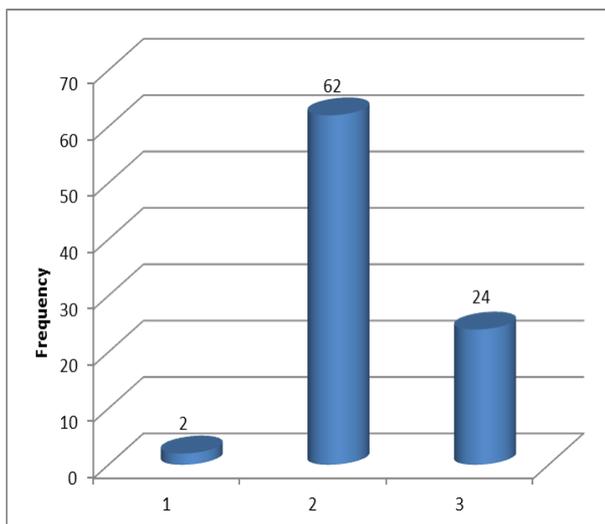


Figure 3: Percentage distribution of patients according to the number of haemodialysis per week.

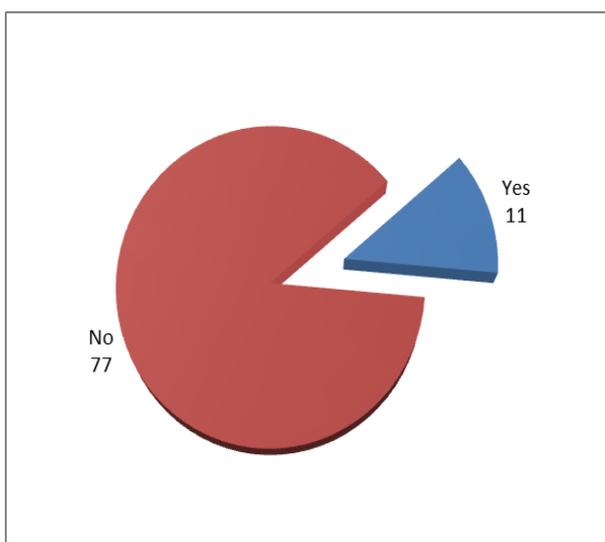


Figure 4: Percentage distribution of the patients according to peritoneal dialysis.

Table 3: Distribution of patients according to frequency of missed HD.

Frequency of missed HD	Frequency	Percent
None	76	86.4
One	11	12.5
Two	1	1.1
Total	88	100.0

Table 4: Distribution of patients according to reason for missing the HD.

Reason	Frequency	Percent
Not applicable	76	86.4
Transportation problem	10	11.4
HD access clotted	2	2.3

Table 5: Distribution of patients according to frequency of missed medication.

Missed medication	Frequency	Percent
None	56	63.6
Very seldom	30	34.1
About half of the time	1	1.1
Most of the time	1	1.1

Table 6: Distribution of patients according to comorbidity.

Comorbidity	Frequency	Percent
DM	2	2.3
DM +HTN	74	84.1
DM + HTN + CAD	9	10.2
DM + HTN+ Thyroid	1	1.1
HTN	2	2.3

Table 7: Distribution of patients according to adherence.

Adherence	Frequency	Percent
<700	2	2.3
700- 999	15	17.0
1000- 1200	71	80.7

Table 8: Relationship between patient’s characteristics and adherence.

Patient characteristics and demographics		Adherence			P value
		Low	Medium	High	
Sex	Male	0	1(9.1%)	10(90.9%)	0.633
	Female	2(2.6%)	14(18.2%)	61(79.2%)	
Age	≤20	0	0	3(100%)	0.769
	21-30	0	0	4(100%)	
	31-40	0	1(20%)	4(80%)	
	41-50	1(3.7%)	8(29.6%)	18(66.7%)	
	51-60	0	3(11.5%)	23(88.5%)	
	61-70	1(5.3%)	3(15.8%)	15(78.9%)	
	70+	0	0	4(100%)	
Marital status	Married	2(2.5%)	14(17.3%)	65(80.2%)	0.597
	Unmarried	0	0	5(100%)	
	widower	0	1(50%)	1(50%)	
Economic status	BPL	2(2.7%)	13(17.8%)	58(79.5%)	0.727

	APL	0	2(13.3%)	13(86.7%)	
Educational status	Illiterate	1(14.3%)	0	6(85.7%)	0.238
	Primary	1(2.3%)	9(20.5%)	34(77.3%)	
	High school	0	6(18.8%)	26(81.3%)	
	Graduate	0	0	5(100%)	
Residential area	Rural	2(2.5%)	15(18.8%)	63(78.8%)	0.349
	Urban	0	0	8(100%)	
Dietary habit	Vegetarian	1(50%)	0	1(50%)	0
	Non-vegetarian	1(1.2%)	15(17.4%)	70(81.4%)	

Table 9: Comparison between duration of haemodialysis and adherence.

Duration of haemodialysis	Adherence			P value
	Low	Medium	High	
2	0	1(100%)	0	0.273
3	0	0	1(100%)	
4	2(2.3%)	14(16.3%)	70(81.4%)	

Table 10: Comparison between duration of haemodialysis per week and adherence.

Duration of haemodialysis per week	Adherence			P value
	Low	Medium	High	
1	1(50%)	0	1(50%)	<0.001
2	0	7(11.3%)	55(88.7%)	
3	1(4.2%)	8(33.3%)	15(62.5%)	

Table 11: Comparison between comorbidity and adherence.

Comorbidity	Adherence			p value
	Low	Medium	High	
DM	1(50%)	0	1(50%)	0.002
DM + HTN	1(1.4%)	14(18.9%)	59(79.7%)	
DM + HTN + CAD	0	0	9(100%)	
DM + HTN + TYROID	0	0	1(100%)	
HTN	0	1(50%)	1(50%)	

Table 12: Comparison between peritoneal dialysis and adherence.

Peritoneal dialysis	Adherence			p value
	Low	Medium	High	
No	2(2.6%)	13(16.9%)	62(80.5%)	0.862
Yes	0	2(18.2%)	9(81.8%)	

DISCUSSION

Out of the 88 patients, majority of them (30.7%) were in the age group of 41-50 year. 29.3% were in the group of 51-60 and only 3.4% were in the age ≤ 20 . This result showed that dialysis patients are more in the age group of 41-50 years. In the present study, 77(87.5%) patients were male and 11 (12.5%) were female. This result was similar with study conducted by *Naalweh et al* and *Venkateswararao et al*. It was observed that majority of patients (92%) were married, 5.7% were unmarried and 2.3% were widower. In the current study, majority of patients were having primary level of education (50%). Only 8% of the patients were illiterate. The results reflect the high literacy level in the state of Kerala. Majority of patients had Below Poverty Line class (83%). Being a Govt. Tertiary care teaching hospital, our study center provides free treatment to patients in BPL class. Most of

the study participants (90.9%) were from rural area. In our study, 97.7% of the patients were non- vegetarians (97.7%).

The duration of dialysis and number of dialysis per week varies from patient to patient depending upon the patients disease conditions like changes in BP, shivering etc. It may be 2 hours, 3 hours and four hours. 97.7% of the patients had 4 hours of duration of dialysis. Most of the patients had undergone haemodialysis twice a week (70.4%). Most of the patients were reached to the dialysis center by using public transportation facility (62.5%). Majority of the dialysis patients (93.2%) were accompanied by their family members to the dialysis center. The results was consistent with a study conducted by *Pang et al* and *Astu et al*. Adherence rates to HD, medication, fluid restriction and dietary recommendation

in the current study population were 86.4%, 84.1%, 63.6%, 27.3%, 63.6% respectively. The result was similar with a study conducted by *Ghanim Hamid et al.* In our study 80.7% patients had high adherence, only 2.3% had low adherence. The result was consistent with a study conducted by *Venkateswararao et al.*

In our study, high adherence showed by males (90.9%). Patients with age ≤ 20 years, age between 21-30 years and above 70 years were showed high adherence. Unmarried patients showed high adherence compared with married and widower patient. Patients in the upper class showed high adherence. Majority of the patients in the lower class were not adhering with the treatment modality. Patients with graduate level of education and coming from urban area showed 100% adherence. Non vegetarians showed high adherence compared with vegetarians. In the present study, high adherence (100%) was observed in patients with 3 hour duration of dialysis. Patient had dialysis in twice weekly showed significantly higher adherence (88.7%) level compared with once and thrice dialysis per week. Majority of the patients were using public transportation facility, among them 81.8% showed high adherence.

The percentage of adherence was significantly higher in patients who have been accompanied by family members to the dialysis center. The support from family members might be the reason for high adherence. Patients with more than two co-morbid conditions showed high adherence. The patient showed high adherence who had done PD before HD.

SUMMARY

The study results are summarized below.

Number of married patients exceeded in this study. The economic status of majority of patients was in the below poverty level and most of them were from rural area. Majority of the patients on this study belongs to primary school of education. Non-vegetarian population are majority in this study.

Majority of patients had 4 hours of duration of haemodialysis. Most of the patients had haemodialysis twice weekly. Majority of patients used public transportation facility. 93.2% patients are accompanied family members to the dialysis center. Only 12.5% of patients under win peritoneal dialysis before haemodialysis. Majority of patients don't missed HD and don't shortening of HD.

Most of the patients had high adherence in medication. Fluid restriction had medium adherence. Dietary recommendation had high adherence. Majority of patients (84.1%) had diabetes and hypertension as co-morbidity. Over all in our study patients had high adherence.

CONCLUSION

Adherence to diet recommendations, fluid restrictions, prescribed medications and attendance at haemodialysis sessions were essential for optimal and effective treatment of patients with end stage renal disease. Counselling and education of patients on HD are important to improve therapeutic outcome. Patients with age ≤ 20 , age between 20-39 and above 70 years of male showed high adherence to the treatment. Adherence towards HD was found to be more in followed by medication, diet and fluid respectively. 80.7% patients showed high adherence. Improving patient's knowledge about disease and treatment may improve adherence. Treatment adherence is a dynamic behaviour therefore needs constant monitoring. Family support are important to improve patient's adherence towards the treatment.

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