Compliance behaviors among patients undergoing hemodialysis therapy in Holy Kerbala / Iraq

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ABSTRACT

Adherence to dialysis sessions attendance, fluid and dietary restriction, and medication recommendations are essential for adequate management of hemodialysis patients. This will help nurses staffs to identify gaps in their health education of patients on haemodialysis. The ultimate goal is to improve patients' adherence to haemodialysis, therefore effective management of end stage renal failure population, consequently their quality of life. This study designed to identify compliance behavior of hemodialysis treatment, medication, fluid and diet restriction among patients undergoing hemodialysis therapy. A descriptive study was carried out at hemodialysis unit in holy kerbala / Iraq, from the period of March, 2014 to October, 2014. A purposive sample of 50 patients undergoing hemodialysis therapy were selected randomly in AL-Husien medical city, and they were invited to be enrolled in the study after taking their consent. The data were collected by means of direct interview technique with the patients, through the use of end stage renal disease-adherence questionnaire (ESRD-AQ). A descriptive statistical analysis procedures were used for the data analysis. The results revealed that most of the study sample was female, within age group more than 60 years old, illiterate, married, housewifes, and most of them were suffering from hypertension. In addition, the majority of them were undergoing hemodialysis treatment not more than five years, and received three dialysis sessions with three hours for each session per week. There are a deficit in compliance behaviors toward hemodialysis attendance, medications, fluid restrictions, and dietary restrictions. The study recommended to educate patients with family involvement about the importance of adherence to hemodialysis therapy, and future studies should be done to identify factors that effecting compliance behavior among hemodialysis patients in holy kerbala.

سلوك الالتزام لدى المرضى الخاضعين للمعالجة بالإنفاذ الدموي في مدينة كربلاء المقدسة / العراق

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الخلاصة:

إن الالتزام بالحضور لجلسات المعالجة بالإنفاذ الدموي والتقييد بالنصائح المتعلقة بتناول السوائل والغذاء وكذلك الأدوية يعتبر من المبادئ الأساسية للعناية الكافية بالمرضى الخاضعين للمعالجة بالإنفاذ الدموي. وهذا سوف يساعد الملاكات التمريضية للتعرف على الثغرات الموجودة في جوانب التثقيف الصحي للمرضى تحت المعالجة بالإنفاذ الدموي, بحيث يكون الهدف الجوهري هو تحسين التزام مرضى الإنفاذ الدموي وبذلك تحسين نوعية حياتهم. أجريت هذه الدراسة الوصفية لغرض تقييم سلوك الالتزام بالمعالجة, الأدوية الموصوفة, التقييد بتناول السوائل والغذاء لدى مرضى الإنفاذ الدموي في مدينة كربلاء المقدسة / العراق. تم جمع البيانات المتعلقة بموضوع الدراسة للفترة من آذار 2014 ولغاية تشرين الأول 2014، حيث تم اختيار عيّنة عشوائية مكونة من (50) مريض خاضعين للمعالجة بالإنفاذ الدموي في مدينة الإمام الحسين (ع) الطبية. جُمِعَت البيانات من خلال استخدام استبانه مصمّمة لهذا الغرض و مكوّنة من محورين, المحور الأول اشتمل على البيانات الخاصة بالمعلومات الديموغرافيّة والمعلومات الأساسية الأخرى والمحور الثاني يحتوي على المعلومات التي تخص سلوك الالتزام بالإنفاذ الدموي, جمعت المعلومات بطريقة المقابلة المباشرة مع المرضى أثناء جلسات المعالجة. واستخدمت إجراءات التحليل الإحصائي الوصفي في تحليل البيانات من خلال البرنامج الإحصائي

وقد أظهرت النتائج أنّ اغلب عينة الدراسة هم من الإناث وغالبية أعمارهم أكثر من ستون سنة ، بالإضافة إلى أن SPSS. اغلبهم لا يجيدون القراءة والكتابة، كذلك أظهرت الدراسة إن اغلب المرضى ممن لا تتجاوز فترة المعالجة بالإنفاذ الدموي الخمس سنوات، ويتلقون المعالجة بالإنفاذ الدموي ثلاث جلسات أسبوعيا وبمعدل ثلاث ساعات لكل جلسة. وان هناك عدم التزام بسلوك المعالجة بالإنفاذ الدموي من حيث الحضور إلى جلسات الإنفاذ الدموي، الالتزام بالأدوية الموصوفة وكذلك الالتزام بالسوائل والغذاء الموصى به. وبناءا على النتائج أوصت الدراسة بضرورة تثقيف المرضى وذويهم حول أهمية الالتزام بالحضور إلى جلسات الإنفاذ الدموي، الالتزام بالأدوية الموصوفة، والتقييد بتناول السوائل والغذاء حسب التوصيات. بالإضافة إلى ضرورة القيام بدراسات مستقبلية لغرض التعرف على العوامل التي تؤثر على سلوك الالتزام لدى مرضى الإنفاذ الدموي.

1. INTRODUCTION

End stage renal failure is one of the chronic diseases which is considered as a public health problem all over the world [1&2]. The number of patients with end stage renal failure is increasing progressively globally [3]. The incidence of end stage renal failure is variable in different countries and its incidence is 242 persons per 1 million worldwide which is increased by 8 % annually[1&4]. Hemodialysis therapy is a common medical method [5]. It is continues to be the significant treatment choice for patients with end stage renal failure, as well as a short term measure until renal transplantation can be performed [6]. When the patient begins the treatment with hemodialysis, his/her life would undergo changes completely, as she/he would participate in dialysis sessions regularly, consumes the prescribed drugs and modifies everything she/he eats or drinks [1&7]. Preserving the health of patients with end stage renal failure, hemodialysis patients should be responsible for many aspects of their own treatment that's include compliance to regularly participation and complete attendance at hemodialysis session, adherence to prescribed medication, adherence to limiting the liquid consumption, and adherence to dietary precautions [8&9]. All these behaviours can be called the treatment adherence behaviours among the hemodialysis patients [1]. Non-adherence to treatment recommendations would directly have relation with poor clinical outcomes [10].

Compliance or adherence of patients is defined as the degree to which a patients behavior correspond with health-related recommendation [11]. Noncompliance is a complex behavioural process and it is affected by many factors such as patients' individual character, patient-physician relationship, and the health-care system [12]. The failure to adhere may lead to increased complication rates and associated costs, and decreased survival [8]. Low adherence to medical treatment is a widely extended problem among chronically ill patients [13]. Patient's compliance can be measured by the accuracy, regularity and willingness he/she demonstrates in completing of the prescribed therapeutic regimen in terms of taking medications, following diet, keeping appointments, and executing other lifestyle changes [14]. Patient nonadherence (sometimes called noncompliance) can take many forms; the advice given to patients by their healthcare professionals to cure or control disease is too often misunderstood, carriedout incorrectly, forgotten, or even completely ignored [15]. There are several types of noncompliance: therapeutic or medication non-compliance which includes failure to have the prescription dispensed or renewed, omission of doses, errors of dosage, incorrect administration, errors in the time and frequency of administration, and premature discontinuation of the drug regimen; A second type of noncompliance is dietary noncompliance in which the patient fails to follow the diet recommendations; A third type is the appointment noncompliance in which the patient fails to show up at the clinics for the scheduled check up [11].

Our study was conducted to measure the compliance behaviours of hemodialysis treatment, medications, fluid restrictions, and diet prescription among patients with end stage renal failure undergoing hemodialysis.

2. METHODOLOGY

A descriptive study was carried out in order to assess compliance behaviours with treatment, medication, fluid and diet restriction among patients undergoing hemodialysis (HD) therapy. A purposive "non-probability" sample of 50 patients who have undergoing HD therapy were selected randomly at HD center in Imam -Husien medical city in holy kerbala were involved in the study after informed consent where accepted to participate. The samples has been selected from all HD patients for all age groups. The data collection was carried out from the period of March, 2014 to October, 2014 by using questionnaire form through interview technique. The end-stage renal disease-adherence questionnaire (ESRD-AQ) for patients requiring in-center HD was adopted to measure treatment adherence behaviors in four dimensions: HD attendance, medication use, fluid restrictions, and diet recommendations. The questionnaire was consisting of two parts: part one include demographic characteristics and related basis information which consists of twelve items, that's include age, gender, marital status, level of education, occupation, pre-dialysis body weight, current body weight, duration of HD treatment, number of HD treatment per week, hours number in each session, type of transportation to the HD center, and patient medical history with chronic disease. The second part of the questionnaire that are concerned with the HD patients adherence behaviours, which include four sections as follow: section one includes nine items presented the patient's compliance behaviours to complete attendance to HD session; section two consist from five items to investigate the compliance behaviors toward prescribed medications; section three includes eight items related to compliance behaviors of fluid restrictions; and section four includes nine items to examine the compliance behaviors of patients toward dietary recommendations. A descriptive statistical analysis (frequency, percentage, cumulative percentage) were used for the data analysis.

3. RESULTS:

Table 1: Socio-demographic characteristics of the sample (n=50).

Characteristics	Groups	Frequency	Percentage
Age groups (Years)	21-30	5	10%
	31-40	6	12%
	41-50	10	20%
	51-60	13	26%
	> 60	16	32%
Gender	Male	22	44%
	Female	28	56%
Marital Status	Single	4	8%
	Married	40	80%
	Divorced/Widowed	6	12%
Educational level	Illiterate	21	42%
	Primary school	15	30%
	Intermediate school	6	12%
	Secondary school	3	6%
	College graduate	5	10%
Occupation	Student	1	2%
	Employee	7	14%
	Retired	8	16%
	Self-employee	3	6%
	Housewife	17	34%

	Unemployed	14	**28%**

Table 2: Frequencies and Percentage of related basis information   parameters (n=50).

Basis Information	Groups	Frequency	Percentage
Pre-dialysis body weight	30-39 KG	1	**2 %**
	40-49 KG	1	**2 %**
	50-59 KG	2	**4 %**
	60-69 KG	15	**30 %**
	70-79 KG	16	**32 %**
	80-89 KG	7	**14 %**
	More than 89 KG	8	**16 %**
Current body weight	30-39 KG	1	**2 %**
	40-49 KG	1	**2 %**
	50-59 KG	3	**6 %**
	60-69 KG	11	**22 %**
	70-79 KG	13	**26 %**
	80-89 KG	11	**22 %**
	More than 89 KG	10	**20 %**
Duration of Hemodialysis treatment	Less than 5 years	43	**86 %**
	6-10 years	4	**8 %**
	More than 10 years	3	**6 %**
Number of hemodialysis treatment per week	Once time	3	**6 %**
	Twice times	17	**34 %**
	Three times	25	**50 %**
	Four times & more	5	**10 %**
Number of hours in each session	2 hours	6	**12 %**
	3 hours	36	**72 %**
	4 hours	7	**14 %**
	According to health condition	1	**2 %**
Type of transportation to the dialysis center	Bus	8	**16 %**
	Taxi	27	**54 %**
	Personal car	11	**22 %**
	Personal car & taxi	3	**6 %**
	Others	1	**2 %**

Table 3: Distribution of patient according to medical history of chronic disease. (n=50).

Patient Medical History	Response	Frequency	Percentage
High Blood Pressure	Yes	34	68 %
	No	16	32 %
Diabetes	Yes	13	26 %
	No	37	74 %
Heart Disease	Yes	11	22 %
	No	39	78 %
Other Disease	Yes	1	2 %
	No	49	98 %

Table 4: Patient's compliance to complete attendance to dialysis session. (n=50).

Items	Response	F	%	M.S	L
You think that the hemodialysis treatment is important.	Yes	42	84 %	10.08	H.L
	No	8	16 %		
You have a desire for coming to the hemodialysis treatment.	Yes	27	54 %	6.4	M.L
	No	23	46 %		
Is there a hemodialysis schedule in your center.	Yes	49	98 %	11.7	H.L
	No	1	2 %		
Is your dialysis schedule convenient for you.	Yes	17	34 %	4.08	M.L
	No	33	66 %		
Are you adhere to the dialysis schedule.	Yes	37	74 %	8.88	H.L
	No	13	26 %		
Are you think of the important to complete the time of session.	Yes	46	92 %	11.04	H.L
	No	4	8 %		
During the last month, how many dialysis session did you missing completely.	Not applicable	24	48 %	3.60	L.L
	One session	12	24 %		
	Two session	3	6 %		
	Three session	3	6 %		
	Four session	8	16 %		
During the last month, how many times have you shortened your dialysis sessions time.	Not applicable	18	36 %	3.48	L.L
	Once	17	34 %		
	Twice	7	14 %		
	Three times	5	10 %		
	Four times and more	3	6 %		
During the last month, when your dialysis treatment was shortened, what was the average number of minutes.	Not applicable	18	36 %	4.08	M.L
	Less than 30 minutes	16	32 %		
	30-60 minutes	13	26 %		
	More than 60 minutes	3	6 %		

M.S: Mean Score; L: Level; L.L: Low Level of Compliance (M.S <4); ML: Moderate level of compliance (M.S4-8); HL: High Level of Compliance(M.S >8)

Results in table four indicate that the majority (84 %) of patients were believed that the dialysis treatment is important, and about half of them (46%) were not having a desire for coming to the dialysis treatment. Regarding the convenience of dialysis schedule, the majority (66%) of patients reveals that the dialysis schedule is not convenient for him, and the majority of them (74%) were adhere to the dialysis schedule. Also about half (52 %) of patients were omitted their dialysis session completely, and 64% of them were shortened the time of dialysis last month, within about one third (32%) of them shortened the time of dialysis at average number of minutes less than 30 minutes.

Table 5: Patient's compliance to prescribes medications. (n=50).

Items	Response	F	%	M.S	L
Know the name, work and side effects of prescribes medications.	Yes	21	42 %	5.04	M.L
	No	29	58 %		
Taken medications at specified	Yes	37	74 %		

times.	No	13	26 %	8.8	**H.L**
Think that when you taken the prescribes medications, will enhanced your health condition.	Yes	41	82 %		
				9.8	**H.L**
	No	9	18 %		
	Always	5	10 %		
Have you had any difficulty with taking your medications.	Sometimes	18	36 %	3.36	**L.L**
	No	27	54 %		
	Not applicable	19	38 %		
During the last month, how often have you missing your prescribes medications.	Very seldom	13	26 %		
	Sometimes	9	18 %	4.8	**M.L**
	Most of times	7	14 %		
	All of the time	2	4 %		

M.S: Mean Score; L: Level; L.L: Low Level of Compliance (M.S <4); ML: Moderate level of compliance (M.S4-8); HL: High Level of Compliance(M.S >8)

Table five shows the frequencies and percentage of patient's compliance to prescribes medications. The data in this table indicates that the most(58%) of patients don't completely know the name, action and side effects of prescribes medications. In addition, there were most of patients(62%) were omitted the prescribes medications last month.

Table 6: Patient's compliance to the fluid restriction(n=50).

Items	Response	F	%	M.S	L
Are you adhere to the recommendation about fluid intake restriction.	Always	21	42 %		
	Sometimes	10	20 %	6.2	**M.L**
	No	19	38 %		
During the past week, how often you followed the fluid restriction recommendation.	Always	25	50%		
	Sometimes	7	14 %	6.8	**M.L**
	No	18	36 %		
How important do you think it is to limit your fluid intake.	Very important	26	52 %		
	Moderately important	11	22 %	7.5	**M.L**
	Not important	13	26 %		
	I understand that my kidney condition requires limiting fluid intake.	24	48 %		
Why do you think it is important for you to limit your fluid intake.	Medical professionals told me to do that.	13	26 %	3.2	**L.L**
	I got sick after I drink lots of fluids.	11	22 %		
	I don't think limiting fluid is very important to me.	2	4 %		
Have you had difficulties with limiting your fluid intake.	Yes	33	66 %	7.9	**M.L**
	No	17	34 %		
	More than three times	1	2 %		

During the past week, how many times have you weighed yourself outside hemodialysis center.		3 times	2	4 %	
		Twice only	3	6 %	1.3 **L.L**
		Once only	6	12 %	
		No to do that	38	76 %	
Is that an increase in your body weight between dialysis sessions.	Yes	One KG.	9	18 %	
		Two KG.	3	6 %	5.2 **M.L**
		Three KG. & more	17	34 %	
	No		21	42 %	
How important do you think to weigh yourself daily.		Very important	31	62 %	
		Moderately important	12	24 %	8.8 **H.L**
		Not important	7	14 %	

M.S: Mean Score; L: Level; L.L: Low Level of Compliance (M.S <4); ML: Moderate level of compliance (M.S4-8);
HL: High Level of Compliance(M.S >8)

Table 6 shows the level of fluid compliance among haemodialysis patients. This table revealed that 42% of patients were always adhere to the recommendation about fluid intake restriction, and about half (52%) of patients show that the limiting of fluid intake is very important for promoting kidney condition. It was seen that 76% of studied sample did not measure their weight outside hemodialysis center, and about 58% of patients having an increase in body weight between dialysis sessions.

Table 7: Patient's compliance to the fluid restriction (n=50)
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Items	Response	F	%	M.S	L
Are you adhere to the diet recommendation.	Always	17	34 %		
	Sometimes	20	40 %	6.4	**M.**
	No	13	26 %		**L**
How important do you think to watch the types of diet you eat each day.	Very important	37	74%		
	Moderately important	6	12 %	9.6	**H.L**
	Not important	7	14 %		
Why do you think it is important for you to watch your diet daily.	I fully understand that my kidney condition requires to watch my diet daily	12	24 %		
	Watching my diet is important to keep my body healthy.	16	32 %		
	Medical professionals told me to do that.	11	22 %	4.4	**M.**
	I got sick after eating food that I was not supposed to eat.	8	16 %		**L**
	I don't think limiting diet is very important.	3	6 %		
Have you had any difficulty when following your dietary recommendations	Always	15	30 %		
	Sometimes	14	28 %	5.2	**M.**
	No	21	42 %		**L**
During past week, how many times have you followed the diet recommendations.	All of the time	27	54 %		
	Sometimes	9	18 %	7.5	**M.**
	Not applicable	14	28 %		**L**
Are you follow to taken small	Yes	41	82 %	9.8	**H.L**

frequent amount of diet.	No	9	18 %		
Are you follow to limit taken salts with diet	Yes	38	76 %	9.1	**H.L**
	No	12	24 %		
Are you follow to taken the recommended amount of protein with diet	Yes	33	66 %	7.9	**M. L**
	No	17	34 %		
Are you follow the recommended routine laboratory tests	Yes	31	62 %	7.4	**M. L**
	No	19	38 %		

M.S: Mean Score; L: Level; L.L: Low Level of Compliance (M.S <4); ML: Moderate level of compliance (M.S4-8); HL: High Level of Compliance(M.S >8)

Table seven shows the knowledge of dietary regimen and the level of compliance among hemodialysis patients. This table shows that only 34% of patients were always adhere to the recommendation of dietary restriction, and about 14% of patients were think that it is not important to watch the types of diet they are eating every day. Among hemodialysis patients there are 24% of participants patients stated that they didn't follow the recommendation about limiting the taken of salts with diet. It was seen that 38 % of studied sample did not follow the recommended routine laboratory tests.

4. DISCUSSION

After analysis of demographic characteristics of the interviewed patients as shown in table one, out of 50 respondents 22 (44 %) were males and 28 (56 %) were females. This finding are similar to the study of Cucor, (2007) who was reported that there were more females on hemodialysis with end stage renal disease than males [16]. According to Cucor (2007), women composed 53% of the sample while men composed 47% of their sample[16]. Also this finding are in contrast with the study of Chironda, et. al., (2014) , who was reported that more males 61.2% presented with end stage renal disease than females 38.8% [17]. In concerning to age group of hemodialysis patients participating in this study sample, the study shows that about one third of patients (32 %) were more than sixty years old, and 10 % of patients were in the age group between (21-30) years old. Age group of (51-60) years is the second highest percent of respondents included in the study. These findings are in contrast with the result of the study which was done by Ali, (2013) at dialysis center in Marjan hospital at Al- Hillah city, who was indicated that the most of the convenient sample of the study was male, within age group (41-51) year [18]. On the contrary, the findings of our study reinforced with the study that done by Najma, et. al., (2005) they were reported that an average age for end stage renal disease patients on hemodialysis as 66 and the age ranged from 60 to 70 years [19].

Regarding to the marital status as listed in table one, the result shows that more than three-quarters (80%) of the studied sample were married, this finding was similar to that of Chan, et. al., (2012) they were reported that the majority (80.3%) of dialysis patients were married [20]. Data of occupation revealed that more than one third of the study sample (34%) were housewife and 28%, 16% were unemployed or retired respectively. This result also similar to the findings of the study that done by Chan, et. al., (2012) they were reported that approximately three-quarters of dialysis patients were either retired or unemployed [20]. Level of education which found 42% of patients who had illiterates, and 30%, 12% respectively were primary and intermediate school, this result was disagrees to the study of Madeiro, et. al., (2012) they found that 66% of patients had finished high school and 6.7% of illiterates [21].

Data in table two summarize the frequencies and percent of related basis information parameters of the studied sample. For pre-dialysis body weight, and current body weight as an indicator for adherence to hemodialysis therapy, the result revealed that there was a significant difference between the pre-dialysis and current body weight in groups of (80-89 KG), and (more than 89 KG) that shows an increase in body weight from 14 %, 16 % to 22 %, 20 % respectively. This findings revealed that the difference of body weight between pre-dialysis and current body weight indicates non-adherence behavior of patients regarding hemodialysis therapy especially fluid restriction, this was similar to the study of Iborra-Moltó, et. al., (2012) they were reported there is a general widespread agreement that weight gain between hemodialysis sessions (interdialytic weight gain) is directly correlated with fluid intake, and as such, is a good indicator for adherence to fluid restrictions [22]. One method for establishing adherence is to determine interdialytic weight gain in relative terms, calculating the percentage increase in inter-haemodialysis weight adjusted for the dry weight of each patient, whether calculated between two sessions or as a mean over a longer period of time [22].

Concerning duration of hemodialysis treatment the result indicate that the majority (86 %) of sample were in the range of less than five years duration, and about 6 % were in the range of more than ten years duration. The heamodialysis treatment of end stage renal disease is a lifelong saving procedure and adherence to heamodialysis might be affected by duration of end stage renal disease [17]. Regarding to the number of hemodialysis treatment per week the majority of them 50% were receiving dialysis treatment three time per week, and approximately three-quarters (72 %) of them receiving dialysis treatment at about three hours in each session, and 14 % of them receiving dialysis treatment at about four hours in each session, this findings disagrees with the result of the study which was done by Ali, (2013) at dialysis center in Marjan hospital at Al- Hillah city, who revealed that 75.6% of the sample were receive two dialysis sessions per week [18].

Results in table three investigate the frequencies and percent of medical history parameters of the studied sample. The results shows that more than two third (68%) of the sample were having high blood pressure, and 26 % of them were suffering from diabetes mellitus, also about 22 % of them were having heart disease. This findings disagrees with the result of the study which was done by Ali, (2013) at dialysis center in Marjan hospital at Al-Hillah city, revealed that 45.6 % of the sample were with hypertension, and 12.2 % of the sample were with diabetes mellitus [18].

Results related to the assessment of patient's compliance behaviour to hemodialysis treatment that presented in table four, indicates that 84% were believed that the hemodialysis treatment is important, and 46% are not have a desire for coming to the dialysis treatment. Regarding to the convenience of dialysis schedule the results shows that the majority of the studied sample (66%) revealed that the dialysis schedule is not convenient for him, and 26 % of them are not adhere to the dialysis schedule. Concerning the number of dialysis session that missed completely during the last month the results revealed that are 52% of dialysis session are missing completely range from one to four dialysis session. This result disagree with the findings that doing by Chironda, et. al., (2014) who was reported 93% of respondents had missed at least one session with 61% respondents missing most of the scheduled sessions and only 7% attending all the hemodialysis sessions as scheduled [17]. Regarding the time of each session the findings revealed that about 64% of sample are shortened dialysis session last month and range from one to four times of dialysis session, within about one third (32 %) of them were shortened their dialysis session about less than 30 minutes and 26 % shortened dialysis session about 30-60 minutes.

The data in table five indicates that the most (58%) of patients don't completely know the name, work and side effects of prescribes medications that taken, and about 26 % of them don't taken medications at specified times. This findings similar to results of the study which was done by Soto, (2009) who was reported that one third (36.6%) of hemodialysis patients didn't know the name of their medications or the purpose of the medications; and 13.3% didn't know or understand medications at all [23]. About one third (33.8%) of the participants were self-reported that they were not completely compliant in taking their prescribed medications, and the most commonly reported reason for not taking medications was forgetfulness, followed by scheduling problems [24]. In addition the result of this study indicates that most of patients(62 %) were missing the prescribes medications last month and range from very seldom 26 %, sometimes 18 %, most of times 14 %, and all of the time 4 % . Also there are 10 % of patients always having difficulties with taking their medications, and 36 % of them sometimes having difficulties with taking their medications, while 54 % of them not having any difficulties when taking their medications. This certainly implies the need for patients to be fully educated about to the importance of taking medications exactly as directed. Further, patients need help with strategies to effectively schedule and remember when to take their medications.

Table six examine the perception of patient regarding adherence to fluid restrictions. Firstly, the results demonstrate that 42 % of patients were reported to be fulfilling a high level of compliance for adherence to recommendation about fluid intake restriction, and about one third (32%) of respondents were represents sometimes adherence to recommendation about fluid intake restriction, and 26 % were not adherence to the recommendation about fluid intake restriction, this finding disagree with the data of Iborra-Moltó, et. al., (2012) they demonstrated that the controlling of fluid intake is essential for proper self-care of kidney patients on haemodialysis [22]. In addition to that there were 52 % of patients show that the limiting of fluid intake is very important for maintaining kidney condition, and about two third (66%) of them having difficulties with limiting fluid intake. It was seen more than three-quarters (76 %) of studied sample did not measure their weight outside hemodialysis center, and about 58 % of patients having an increase in body weight between dialysis sessions. This findings reinforced the data of the study which was done by Kugler, et. al., (2011) they were reported that about 75.3% from total sample was self-reported frequency of non compliance to fluid in patients on chronic hemodialysis [8].

Table seven represent the level of compliance behaviour regarding the dietary regimen among hemodialysis patients. This table shows that only 34 % of patients were always adhere to the recommendation of dietary restriction, and about 14 % of patients were think that it is not important to watch the types of diet they are eating every day, this findings disagree with the data of the study which was done by Rambod, et. al., (2010) they were reported that the adherence to fluid restrictions and dietary guidelines is important for adequate management of hemodialysis patients [25]. A cross-sectional study which was done by Lee and Molassiotis, (2002) to examined dietary and fluid compliance behaviors in chinese hemodialysis patients mentioned that the dietary and fluid compliance was observed in only 35.5% and 40.3% of the patients, respectively [26]. Our findings also congruent with those of Gerbino, et. al., (2011) they were demonstrated that the percent of patients on dialysis who do not adhere to their dietary and therapeutic regimens ranges from 25% to 86% [27]. Among hemodialysis patients there are 24 % of patients stated that they didn't follow the recommendation about limited taken of salts with diet, and 38 % did not follow the recommended routine of laboratory tests.

5. **CONCLUSION**

The study shows that there are most of the study sample was female, within age group more than sixty years old, illiterate, married, housewifes, and most of them were suffering from hypertension. In addition, the majority of them were undergoing hemodialysis treatment not more than five years duration, and received three dialysis sessions with three hours for each session per week. The study shows that there are a poor in compliance behaviours toward hemodialysis attendance, medications, fluid restrictions, and dietary restrictions.

6. **RECOMMENDATION**
   a. There is a need to educate patients with family involvement about the importance of adherence to attendance to hemodialysis treatment, medications adherence, fluid, and dietary restrictions for promoting adherence among patients receiving dialysis.
   b. More patients education by nurses through the mean of group lectures, video or audio to view or listen while on dialysis.
   c. The interaction between nurse and patient is essential to ensure that teaching is effective and on-going.
   d. The dietitian should be consultant to plan renal diet and answer questions, using patient language, explain food frequency consumption, proper planning according to patient socioeconomic status should be designed.
   e. Future studies should be done to identify factors that effecting compliance behaviour among hemodialysis in holy kerbala.

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