Assessment of Nurses' knowledge and Practices Concerning Hemodialysis Adequacy Guideline in Baghdad Teaching Hospitals

Qusay M. Hadi [1]

Dr. Jumma J. Abd Alreda [2]

* Adult Nursing Department, Faculty of Nursing/ University of Baghdad / Iraq.

** Assistant Prof., adult Nursing Department, College of Nursing, University of Baghdad, Iraq.

Corresponding author: Qusay M. Hadi; MSc., Student, Department of Adult Nursing, Collage of Nursing, University of Baghdad, Iraq.
Email:
hkamalzedawy@gamial.com.

الخلاصة:

خلفية البحث: يصنف مرض الكلى في المرتبة الثالثة بين الأمراض التي تهدد الحياة في العالم، بعد السرطان وأمراض القلب، يذهب حوالي 200000 شخص إلى مرحلة الفشل الكلوي سنويًا في العالم، بينما يتأثر مليون شخص سنويًا بأمراض الكلى غير المميتة.

الهدف: تهدف الدراسة لتقيم معارف وممارسات الممرضين المتعلقة بدليل العمل ببرنامج الانفاذ الدموي الكفوء في مستشفيات بغداد التعليمية.

المنهجية: تم اجراء دراسة غرضية تشمل 60 ممرض من 30 تشرين الاول 2018 وحتى 4 حزيران 2019 على الممرضين العاملين في مراكز غسيل الكلى في مستشفى بغداد التعليمي. ومديرية الرصافة الصحية ببغداد والتي تشمل: مستشفى الكندي التعليمي ومستشفى الامام علي (عليه السلام) التعليمي لتقيم معارف وممارسات الممرضين المتعلقة بدليل العمل ببرنامج الانفاذ الدموي الكفوء في مستشفيات بغداد التعليمية وكانت عينة الدراسة عينة غير مرجحة (عينة هادفة) تشمل (60) ممرضة. تم استخدام أداة الدراسة استبيان لغرض البحث وتتألف من جزأين، وهذه الأجزاء هي شكل بيانات ديموغرافية ومؤشر عناصر المعرفة والممارسة.

تم استخدام الإحصاء الوصفي واختبار ارتباط المنتج في لحظة بيرسون لتحليل البيانات على الإصدار 21 من SPSS.

النتائج: وكشفت البيانات أن غالبية المشاركين كانوا في سن ما بين (20-29) عامًا مع خبرة في العمل (1-5) سنوات، وكانت الغالبية خريج مدرسة التمريض الثانوية العامة. ظهرت نتائج الدراسة الحالية ان غالبية الممرضين مستوى ضعيف من المعرفة والممارسات نحو العمل ببرنامج الانفاذ الدموي الكفوء في المستشفيات.

الاستنتاجات: استنتجت الدراسة الحالية ضعف معارف الممرضين وممارساتهم.

التوصيات: مما يشير إلى الحاجة الملحة لعمل برنامج التثقيف والتوعية لتحسين المعرفة لدى الممرضات فيما يتعلق بدليل العمل ببرنامج الانفاذ الدموي الكفوء.

الكلمات المفتاحية: تقييم، معارف، الممارسات، غسيل الكلى، كفاية.

ABSTRACT

Background: Kidney disease ranks third among life threatening diseases in the world, after cancer and heart disease, it goes about 200000 [1].

Objectives: to assess nurses' knowledge and practices concerning hemodialysis adequacy guide line in Baghdad teaching hospitals.

Methodology: An objective study involving 60 nurses was conducted from October 30, 2018 to June 4, 2019 on nurses working in dialysis centers at Baghdad Teaching Hospital. And the Rusafa Health Directorate in Baghdad, which includes: Al-Kindi Teaching Hospital and Imam Ali (peace be upon him) Teaching Hospital to assess the knowledge and practices of nurses related to the work guide for the efficient blood enforcement program in Baghdad educational hospitals and the study sample was an unweight sample (a purposeful sample) that includes (60) nurses. A questionnaire study tool was used for the purpose of research and it consists of two parts, and these parts are the form of demographic data and the knowledge and practice elements index.

Results: Data revealed that majority of the participants were within age between (20-29) years

with job experience (1-5) years, majority were holding General secondary nursing school graduate. Majority nurses showed poor level of knowledge and practices towards hemodialysis adequacy guide line in hospitals.

Conclusion: The current study concluded that the nurses' knowledge and practices are weak.

Recommendations: This indicates theurgent need for the work of the education and awareness program to improve the knowledge of the nurses regarding the work guide for an efficient blood enforcement program.

Keyword: Assessment, knowledge, practices, hemodialysis, adequacy.

INTRODUCTION

Dialysis efficacy is one of the predominant factors determining survival in hemodialysis patients. The index kt/v urea, (which is a function of dialyzer urea clearance, treatment time, and urea distribution volume), is by far the most commonly used marker for dialysis adequacy [2].

In the past 20 years, despite major advances in medicine and the technology of hemodialysis, the morbidity, mortality and hospitalization of chronic kidney disease patients remain high [3]. The annual mortality rate of hemodialysis patients is 18% and hospitalization is approximately 2 times greater than normal people [4].

End-stage renal disease (ESRD) causes irreversible, severe kidney failure [5]. It is a major outcome of chronic kidney disease (CKD), with an important effect on the quality of life (QOL) [6].

There are about 1.8 million patients with end stage renal disease (ESRD) all over the world that need a kind of renal replacement therapy (RRT), including hemodialysis, peritoneal dialysis, or transplantation. Hemodialysis is one of the main modalities in RRT [7].

One of the most important criteria for the evaluation of hemodialysis process is to measure the dialysis adequacy [8].

Dialysis adequacy is the recommended quantity of hemodialysis delivered which is required for adequate treatment of end stage renal disease (ESRD), such that the patient receives full benefit of hemodialysis (9).

Consider kt/v gold standard for measuring the adequacy of dialysis, where k is the dialyzer urea clearance (expressed in liters per hour), t It is time on dialysis (expressed in hours), and v is the volume of distribution of urea (expressed in liters) [10].

Adequacy of hemodialysis increases patient survival, quality of life and biochemical outcomes and decrease disease complications and hospitalizations [11].

If hemodialysis does not possess necessary quality, blood toxin levels and clinical symptoms would not be well controlled and therefore the morbidity and mortality will be increased [12].

The nurses is an important link in the determination of adequate dialysis. Whether by preventing shortened sessions, determining access problems, performing proper pre- and post-BUN sampling, or ensuring that the patient's treatment is done according to the patient's dialysis prescription, the dialysis Nurses plays an important role in ensuring adequate dialysis and decreasing patient morbidity and mortality [13].

AIMS OF THE STUDY

This study aims to assess nurses' knowledge and practices concerning hemodialysis adequacy guide line in Baghdad teaching hospitals.

METHODOLOGY

An objective study involving 60 nurses was conducted from October 30, 2018 to June 4, 2019 on nurses working in dialysis centers at Baghdad Teaching Hospital. And AL-Rusafa Health Directorate in

Baghdad, which includes: Al-Kindi Teaching Hospital and Imam Ali (peace be upon him) Teaching Hospital to assess the knowledge and practices of nurses related to the work guide for the efficient blood enforcement program in Baghdad educational hospitals and the study sample was an unweight sample (a purposeful sample) that includes (60) nurses. A questionnaire study tool was used for the purpose of research and it consists of two parts, and these parts are the form of demographic data and the knowledge and practice elements index.

RESULTS

Table (1): Distribution of the Sample by their General Information

Variable		No.	%
Gender	Female	30	50
	Male	30	50
	Total	60	100
Age by years	20-29	33	54.95
	30-39	17	28.3
	40-49	6	10.05
	50 $\leq$	4	6.7
	Total	**60**	**100**
Level of education	Secondary Nursing School Graduate	27	45
	Nursing Institute Graduate	20	33.3
	Nursing College Graduate	13	24.2
	Total	**60**	**100**
Marital status	Married	56	93.35
	Single	3	5
	Divorced	1	1.65
	Total	**60**	**100**
Years of service in HE MODIALYS units	1-5	29	48.3
	6-10	18	30
	11-15	10	16.7
	16-20	3	5
	Total	**60**	**100**
Participation Training previous Training	Yes	--	-
	No	60	100
	Total	**60**	**100**

No. = number, %= percentage.

Table 1 shows the demographic information of the studied, the gender of the was equal between male and female , most were secondary nursing school graduate at (45) %, most of the sample were married (93.35), the

had (1-5) years of service in the hemodialysis units (48.3) %, the not participate in the training session related to hemodialysis.

Table (2): Assessment of Nurses Knowledge toward hemodialysis adequacy guide line by mean score

No.	Items	M	Level
1	Guideline to the work of the renal enforcement program was issued on:	1.28	L
2	Kt / V is the universally adopted standard for measuring efficiency	1.28	L
3	The goal of Kt / v is:	1.28	L
4	Detector kt / v World:	1.31	L
5	K (clearance) means the amount of blood discharged from( ) per minute (ml / min)	1.14	L
6	T (time) means effective time:	1.07	L
7	V (volume) means the volume of liquids( ) and measured in liters:	1.17	L
8	LIMIT Minimum washing efficiency before and when alarm is triggered:	1.31	L
9	TARGET The required wash efficiency and value:	1.1	L
10	To find out the size of the patient fluids we enter:	1.07	L
11	K LIMIT The minimum blood purification rate ( ) per minute before the alarm is released usually (giving half the speed of the blood pump)	1.24	L
12	Continuous movement / movement of liquid inside the filter ( ) of the blood movement helps to transfer fluids and salts to and from the blood better:	1.24	L
13	The values of LIMIT, TARGET, are evident for most renal failure patients:	1.28	L
14	Molecular weight of sodium is: The	1.52	M
15	The molecular weight of urea is:	1.40	M
16	During the washing, each molecule of urea is discharged with a sodium molecule:	1.31	L
17	The weekly wash time for patients with chronic renal disability ranges from( ) minutes:	1.31	L
18	Patients with renal disease in their later stages generally have high levels of serum:	1.24	L
19	The high level of phosphorus may contribute to their injury:	1.31	L
20	The level of phosphorus in the blood ranges between (mg / dl):	1.41	M
21	The tube that carries the blood from the patient to the filter is:	1.07	L
22	The tube that returns the pure blood from the filter to the patient's body is:	1.07	L
23	Natural man wash his kidney daily without any pain:	1.07	L
24	The speed of the blood pump varies from( ) per milliliter per minute:	1.1	L
25	Blood enters the filter inside the capillaries from:	1.1	L
26	The solution for blood washing dialysate is transmitted from () but from extra capillaries:	1.07	L
27	Diffusion is the transfer of salts from:	1.1	L

No.	Items	M	ASS.
28	If any high element within the human body will move from the patient's blood to the existing fluid( ) And then go to the sewer:	1.38	M
29	If there is ( ) in an element, this element moves from the liquid to the patient's blood until there is a balance between the salts in the patient's blood and the fluid surrounding the capillaries inside the filter:	1.07	L
30	Osmosis is the transmission of liquids from:	1.07	L
Grand mean		**1.21**	**L**

M= mean, Ass. = assessment, level of assessment: (1-1.33) = low = L, (1.34-1.67) = moderate = M, (1.68-2.00) = high = H.

Table 2 shows that nurses had a low level when response to all items except the items (Fourteen, fifteen, twenty and Twenty-eight) at the moderate level and the grand mean was (1.21) at low level.

Table (3): Assessment of Nurses Practice toward hemodialysis adequacy guide line by mean score

No.	Items	M	ASS.
1	Wear personal protective equipment (gloves, mask, head cover, foot cover).	2.87	M
2	Measuring patient weight.	2.8	M
3	Know and record the increase in patient weight compared to the previous session.	3.03	H
4	Prepare the dialysis device before putting the patient on it.	4	H
5	Preparing the patient's drum to be placed on the dialysis machine.	4	H
6	Ensure the integrity of A.V fistula.	4	H
7	Press the KT / V button located below the keyboard on the right.	1	L
8	Determine the value of Klimt and return to be two thirds of the blood speed.	1	L
9	Activate Scree n	1	L
10	Specify the time periods between each measurement and for example each (15 or 30) minutes.	1	L
11	Re-press the KT / V button.	1	L
12	Entering the total fluid volume of the patient's body.	1	L
13	Introducing the patient's sex.	1	L
14	Introducing the patient's age.	1	L
15	Insert the length of the patient.	1	L
16	Introducing patient weight.	1	L
17	Enter the desired Kt / v value target.	1	L
18	Enter the value of Limit.	1	L
19	Save the input information.	1	L
20	Learn to read the forecast screen from the beginning of the session to determine the efficiency of the session.	1	L
21	If the session is not efficient, we increase the time or blood speed.	1	L
22	Record the notes on the nursing notes form for the dialysis.	4	H
23	Give (heparin).	4	H
24	Destruction of disposable materials used in the hemodialysis.	4	H
25	Sterilization of dialysis device.	3.5	H
	Grand Mean	2.05	M

M= mean, Ass. = assessment, Level of assessment: (1-2) = Low ;(2.1-3) = Moderate; (3.1-4) = High.
Table 3 shows that nurses had a low level when response to all items except the items (one and Twenty-Five at the moderate level and the items (Three, Four, Six, Twenty Two, Twenty Three, Twenty Four) and two at high

level and item the grand mean was (2.05) at moderate level. At the post test nurses had a high level of assessment for all items except the items (Ten, thirteen, fifteen seventeen) at the moderate level and the grand mean was (3.62) high level.

DISCUSSION

Part I: Discussion of the Study Sample by their Demographic Data

According to the findings of the present males and females were equal in both groups. This result is inconsistent with the results of Walled and Hattab (2017) [14] and Shahdadi and Rahnama (2018) [15] they found that females more than males in their studies. Regarding the age, most of nurses at age group (20-29) years, this result is inconsistent with the results of Walled and Hattab (2017) and Shahdadi and Rahnama (2018) they found that the nurses age above (30) years.

Majority of study sample were graduating of secondary nursing school. This result is inconsistent with the result of Walled and Hattab (2017) and Al Qahtani and Almetrek (2017) [16] they found that most of nurses had a diploma in nursing this difference may be due to a difference in the sample size or difference in the type of study design.

Most of nurses were married and had (1-5) experiences years in hemodialysis units. This result is consistent with the result Shahdadi and Rahnama (2018) of they found that most of nurses were married and 4.7 years of experience in hemodialysis department while Waleed and Hattab (2017) found that the majority of the study sample years of experience more than 5 years and this result is inconsistent with the finding of the present study.

Regarding to previous training, all of nurses were not participate in training sessions related to hemodialysis.

Part II: Discussion of Nurses Knowledge and Practice toward hemodialysis adequacy guideline Regarding to the study group response to the knowledge items of the hemodialysis at the findings indicate that the nurses had low level of knowledge. Also, according to the control group response to the knowledge items of the questionnaire at in table (3), the findings indicate that the nurses had low level of knowledge. This result is consistent with the result of Mohammed et al., (2017) [17] they found that the study sample had unsatisfactory level of knowledge regarding non-tunneled hemodialysis catheter management. Manandhar et al., (2017) [18] found that Dialysis nurses have knowledge on basic procedures of hemodialysis but there is a space for improvement in dealing with complications to provide quality service to hemodialysis patients. This result is inconsistent with the findings of the present study.

CONCLUSION

The current study concluded that the nurses' knowledge and practices are weak.

RECOMMENDATIONS

1. Training workshops for nurses about hemodialysis adequacy guideline
2. Involving the professional nurses to work in hemodialysis units, in order to provide good nursing care to patients.
3. Evaluation of the nurses intervention toward patients in the hemodialysis units and find the obstacles and work to solve them.

REFERENCES:

1. Australian Institute of Health. (2012). Australia's Health 2012: In Brief. *AIHW*

2. Kooman, J. P., van der Sande, F. M., & Leunissen, K. M. (2001). Kt/V: finding the tree within the woods. *Nephrology Dialysis Transplantation*, 16(9), 1749-1752.

3. Abedi Samakoosh, M., Aghaie, N., Gholami, F., Shirzad, M., Yosefi, E., & Teymoor zadeh Baboli, M. (2013). Assessment dialysis adequacy in hemodialysis patients of Qaemshar Razi Hospital in 2012. *Journal of Mazandaran University of Medical Sciences*, 23(107), 20-27.

4. Amini, M., Aghighi, M., Masoud kabir, F., Zamyadi, M., Norouzi, S., Rajolani, H., & Pourba khtyaran, E. (2011). Hemodialysis adequacy and treatment in Iranian patients: a national multicenter study. *Iranian journal of kidney diseases*, 5(2), 103.

5. Arnold R, Issar T, Krishnan AV, Pussell BA. (2016) Neurological complications in chronic kidney disease, *JRSM cardiovascular disease*. Oct; 5:2048004016677687.

6. Ghiasi, B., Sarokhani, D., Dehkordi, A. H., Sayehmiri, K., & Heidari, M. H. (2018). Quality of life of patients with chronic kidney disease in Iran: systematic review and meta-analysis. *Indian journal of palliative care*, 24(1), 104.

7. Sally Campoy, D. N. P., Larson, K., Murcek, C. D., Taylor-Smith, A., & Todd, C. L. (2012). ANNA National Symposium Abstracts. *Nephrology Nursing Journal*, 39(2), 157.

8. Saeed, H. S., & Sinjari, H. Y. (2018). Assessment of Hemodialysis Efficacy in Patients with End Stage Renal Failure in the Erbil Hemodialysis Center, *Medical Journal of Babylon*, 15(4), 276-280.

9. Hemayati, R., Lesanpezeshki, M., & Seifi, S. (2015). Association of dialysis adequacy with nutritional and inflammatory status in patients with chronic kidney failure, *Saudi Journal of Kidney Diseases and Transplantation*, 26(6), 115.

10. Daugirdas, J. T., Depner, T. A., Greene, T., Levin, N. W., Chertow, G. M., Rocco, M. V., &Frequent Hemodialysis Network (FHN) Trial Group. (2010). Standard Kt/V urea: a method of calculation that includes effects of fluid removal and residual kidney clearance, *Kidney international*. 77(7), 637-644.

11. Adas, H., Al-Ramahi, R., Jaradat, N., & Badran, R. (2014). Assessment of adequacy of hemodialysis dose at a Palestinian hospital, *Saudi Journal of Kidney Diseases and Transplantation*, 25(2), 438.

12. Himmelfarb, J., & Ikizler, T. A. (2010). Hemodialysis, *New England Journal of Medicine*, 363(19), 1833-1845.

13. Allon, Michael, and Michelle L. Robbin. (2002). "Increasing Arteriovenous Fistulas in Hemodialysis Patients: Problems and Solutions," Kidney International.

14. Waleed, S.S., &Hattab, K.M.(2017).Effectiveness of An Educational Program on nurses´ Knowledge About Peritoneal Dialysis At Pediatric Teaching Hospitals In Baghdad city. 6(6),39-47.

15. Shahdadi. H. Rahnama. M. (2018). Experience of Nurses in Hemodialysis Care: A Phenomenological Study. *J Clin Med*. Vol. 7. No.: 2. P. 30.

16. Al Qahtani. A. S. Almetrek. M.A. (2017). Knowledge, Attitudes and Practice of Nurses in Renal Dialysis Units Regarding Infection Control in Abha City –Saudi Arabia, *The Egyptian Journal of Hospital Medicine*. Vol. 66. Pp. 103-114.

17. Mohammed. R. M. Mohammed. W. Y. Seloma, Y. A. (2017). Non-tunneled hemodialysis catheter among acute renal failure patients: *nurses' knowledge and practices at El Fayoum Insurance Hospital*. Vol. 14. Issue. 3. P. 219.

18. Manandhar. D. N. Chhetri. P. K. Poudel. P. Baidya. S. K. (2017). Knowledge and Practice of Hemodialysis Amongst Dialysis Nurses, *journal of the Nepal Medical Association*. Vol.: 56. No.: 207. P.: 346.