



RESEARCH ARTICLE

Awareness of Nurse’s Knowledge Regarding Hemodialysis Procedure and Complications in Dialysis Center of Sulaimani city

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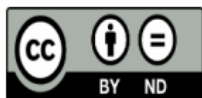
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ABSTRACT

Background: Hemodialysis is required to the specific nurses’ knowledges and the virtuous nursing care with the high standard practice for the management of end stage kidney disease patient. Nurse’s knowledge about hemodialysis takes a key role in the success of this practice. This study aimed to assessing the nurse’s knowledge about hemodialysis procedure and complication in Sulaimani City. Methods: A descriptive cross-sectional study was conducted in Shar Teaching Hospital from June 1, 2022 to February 2, 2022. A total 102 nurses were recruited to this study by using a convenience sample size. Data were collected by using the structured questionnaire that was about sociodemographic variables and nursing awareness about hemodialysis. Results: The study found the participant nurses were mostly female (52%), married (62.7%), in the age group (28<38 years) (78.4%), the professional diploma level of education (69.6%), and 5 -10 years of experiences (79.4%). Age group (28<38 years) and Bachler education level had a significant relationship with knowledge about hemodialysis procedure (p. value= 0.04) and its complications (p. value= 0.02). Knowledge about washing hand (33.3%), putting gloves (41.2), and chest pain and shortness of breath complication (50%) were less considerably among the nurses. Conclusions: This study has found level of knowledge about hemodialysis were considered low among nurses. Age and level of education were significantly but inconsistently associated with the knowledge about hemodialysis. Nurses did not have proficient knowledge about infection control and the complications of hemodialysis. This study recommends the continuous training to low educated nurse.

Keywords: knowledge, Nurse, Hemodialysis, Complications, Sociodemographic.

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INTRODUCTION

Better knowledge of nurses regarding hemodialysis is require to good quality health care and management of the patient with the end-stage kidney disease. Hemodialysis need to the specific nursing skills and virtuous nursing practice that should be performed in high standard (1), (2). This procedure is almost associated with such perilous complications that threatened to life. High educated and trained nurse needs to perform the hemodialysis procedure, and continuous professional courses are essential for the nurses to advance their knowledge and practice while deal with hemodialysis patient (3). Some studies in worldwide countries such as Sudan, Italy and Greek have addressed low knowledge of the nurse regarding hemodialysis (4) (5) (6). Despite of that a study has mentioned that knowledge about and practice of hemodialysis are varies in an university hospital (private hospital)compared ministry of health hospital (public hospital) (7). Knowledge about hemodialysis in various hospital may related to the nurse's demographic and professional background, and the knowledge could differs regarding to the technics and process of hemodialysis procedures.

Knowledge about hemodialysis could be related to nurse's years of degree and frequency of training sessions that the nurses involved. Hemodialysis nursing care could be improve by nurse's education level, more experience and training (8). Continues training and education for nurses have been suggesting in many studies (9) (5) (10). A study in the Republic of Ireland has shown that over half of the nurses in hemodialysis unit had been enrolled in training course in last years of their experience (11). Good practice of hemodialysis procedure require to high knowledge about clinical signs, dialysis machine, principles of urea transport, shunt care, drug and nutrition, technic for infection control and susceptibility to complications (8) (9). Knowledge about the technics and procedures of hemodialysis various among nurses, in such center, knowledge about

infection control technics such as handwashing is considered low (4). While there is a another study that indicated that nurse has the low knowledge about the components of dialysate solution (12).

Knowledge about hemodialysis could be determined by the nurses' demographic characteristics such as age and gender. Some studies have found the relationship of knowledge with the gender, age group and nurse's position (10) (13). A study has illustrated that marital status significantly has determined the good knowledge about hemodialysis among nurses, while age and gender have not related to knowledge about hemodialysis (12). Other study has defined age and number of children as indicator for good practice (14). Sociodemographic, professional education, training and experience have contributed in the determining of knowledge about hemodialysis. The aim of this study is to assessing the nurse's knowledge about hemodialysis procedure and complication in Sulaimani City.

METHOD

A descriptive cross-sectional study was conducted in Shar Teaching Hospital from the June 1, 2022 to the February 2, 2022. A total 102 nurse were recruited to this study by the using a convenience sample size and random sampling technic. Any nurse working in the hemodialysis department who giving consent orally were eligible to this study. Nurses who employee less than 2 years in this department were excluded from this study.

Data collection and measurement

Data were collected by using the structured questionnaire that was consist of two parts. Part one included variables about the demographic and work experience such as age, gender, marital status, level of education and years of experiences. Part two encompasses a tool that have included the 15 questions (items) about the

hemodialysis procedures and 5 questions about the complications associated with the hemodialysis. The items asked about infection control such as washing hand and wearing gloves, monitoring the vital signs and body weight, component of dialysate solutions, catheter insertion and machine monitoring, and personal protective particularly prevention form hepatitis B virus. Each item of the tool was 3 Likert scale, (I know, uncertain, I don't know). Only "I know" has been considered as a true answer and scored one. A collection of score were used to make scale, hemodialysis knowledge was measured based on the collection of the score, and mean of the score was used to data analysis. The score was ranged from 0 -15 for knowledge about hemodialysis procedure and 0-5 for knowledge about the complications. High score has indicated the better knowledge.

Data analysis

The data were analyzed by the using the application of Statistical Package of

Social Sciences (SPSS) version 22.0 and data have presented in Table. Descriptive analysis has been applied though the frequency and percentage, and mean and standard deviation. T test and ANOVA were used to test the statistical relation of sociodemographic variables with the knowledge about hemodialysis. Statistical significance was considered at P value<0.05.

RESULTS

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Table 1 sociodemographic of the participants

Demographic variables	Frequency	Percentage
Age		
18 <28 years	18	17.6
28<38 years	80	78.4
38 years and more	4	3.9
Gender		
Male	49	48.0
Female	53	52.0
Marital Status		
Single	38	37.3
Married	64	62.7
Level of education		
Secondary nursing school	9	8.8
Nursing institute	71	69.6
College of nursing	22	21.6

Years of experience		
less than 5 years	15	14.7
5-10 years	81	79.4
10-20 years	6	5.9
Total	102	100.0

Table 1 indicated that most participants of the study were female (52%), married (62.7%) and in the age group (28<38 years) (78,4%). Most of the nurses had institute or professional diploma level of education (69.6%), and 5 -10 years of experiences (79.4%).

Table 2 the association of demographic characteristic with knowledge about hemodialysis

Demographic characteristic	Knowledge about hemodialysis procedure	Knowledge about complication	Overall knowledge about hemodialysis
Age			
18 <28 years	8.28±2.70	3.00±.69	11.28±3.20
28<38 years	9.61±2.16	2.94±.77	12.55±2.66
38 years and more	8.00±.00	4.00±.00	12.00±.00
p	0.04	0.02	0.2
Gender			
Male	9.08±2.44	2.94±.63	12.02±2.72
Female	9.53±2.12	3.04±.88	12.57±2.75
p	0.32	0.52	0.32
Marital status			
Single	9.84±1.76	3.08±.63	12.92±2.19
Married	9.00±2.49	2.94±.83	11.94±2.97
p	0.07	0.37	0.8
Level of Education			
Secondary nursing school	7.00±3.00	2.67±.50	9.67±3.50
Nursing institute	9.17±2.12	3.15±.80	12.32±2.68
College of nursing	10.73±1.45	2.59±.50	13.32±1.84
p	0.00	0.00	0.00
Years of experience			
less than 5 years	8.67±2.64	3.20±1.08	11.87±3.31
5-10 years	9.46±2.29	2.95±.72	12.41±2.73

10-20 years	9.00±.00	3.00±.00	12.00±.00
Total	9.31±2.28	2.99±.76	12.30±2.74
p	0.44	0.51	0.75

Table 2 has demonstrated that age has significantly associated with knowledge about hemodialysis procedures (p. value= 0.04) and complications (p. value= 0.02). Mean of knowledge about hemodialysis procedures (9.61±2.16) in the age group 28<38 years and mean of knowledge about hemodialysis complication (4.00±.00) in age group 38 years and more were significantly higher comparatively. The study found the high significant relationship between level of education and knowledge about hemodialysis in general, and procedure and complication in particular (P value= 0.00). College nurses had higher significant knowledge mean in general (13.32±1.84) and knowledge about procedure (10.73±1.45), while diploma nurse has high significant knowledge about hemodialysis complications (3.15±.80). Single and female had better knowledge about hemodialysis but significant deference was not observed. Less than 5 years' experience also had lower knowledge.

Table 3 the frequency and percentage about true answer regarding to hemodialysis practice

Items about hemodialysis knowledge	True answer	Percentages
Knowledge about procedure items		
Washing hands importance between patients and another.	34	33.3
Putting gloves before dealing with the patient.	42	41.2
Using sterile technique during insertion of the catheter.	65	63.7
Assessing vascular access for infection signs.	72	70.6
Evaluating the vascular access site for functioning.	73	71.6
Importance of checking blood pressure through dialysis.	73	71.6
Necessity of checking vital signs every half to full hour	57	55.9
Catheter insertion accurately	70	68.6
The component of dialysate solution.	67	65.7
Set the speed of the blood stream through the (circuit set of dialysis).	66	64.7
Monitor the weight of patient before and after the dialysis.	64	62.7
Types of vascular access site.	68	66.7
Dealing with all alarms in the machine.	71	69.6
Importance of (PPE) used in the unit especially for hepatitis patient.	60	58.8
Necessarily document machine setting and each nursing Procedure during and after hemodialysis.	68	66.7
Knowledge about Complication items		
Deal with changes in BP	62	60.8
Correct air embolism	67	65.7
Clotted dialyses	66	64.7
Treatment of muscle cramp	59	57.8
Chest pain and SOB	51	50.0

Table 3 has shown the difference percentage of knowledge about items related to hemodialysis procedure and complication. The percentage of knowing the washing hand (33.3%) and putting on gloves (41.2) were less considerably. While percentage of knowing about the evaluate vascular for sign of infection (70.6%) and the important of checking vital sign and blood pressure (71.6%) during dialysis were high comparatively. Regarding hemodialysis complications, percentage rate about knowing the chest pain and shortness of breath as a complication was less among nurses (50%).

DISCUSSION

Aim of this study was to assessing the nurse's knowledge about hemodialysis procedure in Sulaimani city. This study has included 102 nurses that were mostly female, married and young. Most of the nurses had institute or diploma level of education and 5-10 years of experiences. The study has found that the level of knowledge about hemodialysis was considerably low among the nurses. This finding is consistent with the data in Sudan, Italy and Greek that have in indicate to low knowledge of the nurse concerning to hemodialysis (4) (5) (6) (15). However, knowledge in these studies has been measured in more detail about the nutritional effect of phosphorus and infection control of such virus (HBV). Meanwhile, knowledge about hemodialysis in this study was considered very low compared to the Egept study that has used similar tool for measuring knowledge (12). The low knowledge about hemodialysis in this study mostly has related to the high rate of low educational background of the nurses such as diploma and secondary nursing school certificate, and nurses might not attend training course however most nurses had 5-10 years of experineces.

The sociodemographic characteristics have a difference association with the nurse's knowledge about hemodialysis. Current study has found that the age groups were significantly related to the knowledge about hemodialysis procedure (p. value= 0.04) and complication (p. value= 0.02). However, age has not being consistently associated with the knowledge of

hemodialysis, since knowledge about hemodialysis procure was higher in age group 28<38 years, and knowledge about complications was high in age group 38 years and more. Meanwhile, a study has found that training about hemodialysis has made the similar effect of improving knowledge for the different age (10). In this study, female and single nurses had high knowledge about hemodialysis but was not significant. In the Egypt study, age and gender were not significantly related to the knowledge while being married was significantly correlated with good the knowledge about hemodialysis (12). Age and education in this study could make a differences in the assessing of nurse's knowledge since the younger nurses were mostly more educated and older nurse were more experienced considerably.

In this study level of education or degree has main determinant of knowledge about hemodialysis in general, and procedure and complication in particular (P value= 0.00). This association was also inconsistent. College nurses had higher significant knowledge in general about hemodialysis and about the procedure, while diploma nurse has higher significant knowledge about hemodialysis complication. This findings were parallel with study in Egypt, Sudan and Erbil (15) (8) (16), while in other study in Egypt has shown the year of experiences have significant positive association with the knowledge about hemodialysis but the education level did not show a significant association(12). In this study, more than 5 years' experience also had higher knowledge about hemodialysis but the difference was not statistically significant. Nurses who have

more experience may be involved in more training courses that causes better knowledge(17) (8) (18). In current study more experience has not significantly associated knowledge this is because nurses did not enroll in any training courses (19).

The current study has shown that nursing knowledge about the steps of hemodialysis procedures and difference kind of complications varies. The nurses did not have proficient knowledge about washing hand (33.3%) and putting on gloves (41.2), and same findings were observed in a Sudan and Egypt studies, nurses did not aware and adhere to infection control recommendations such hand washing and wearing gloves (19) (10). Two studies in the Brazil and in Mosul, almost (89%) and (72%) of nurse were aware about hand hygiene when provide care for hemodialysis patients (1) (20). Meanwhile in this study the nurse did not have such extend acceptable knowledge about evaluating vascular for sign of infection (70.6%) and check the vital sign and blood pressure (71.6%). However, this rates were high considered to the Egyptian study that only (35%) of nurses were aware about signs of infection and the important of checking vital signs (12). While this knowledge was not comparable to the Nepal's nurse that all nurse had sufficient knowledge about the infection control and blood pressure monitoring during hemodialysis (21).

Regarding hemodialysis complications, in this study, nurses had less knowledge about chest pain and shortness of breath (50%). While in two study in Nepal and Egypt, 77.6 % and 88.6% of nurse had adequate knowledge about the hemodialysis complications and their management (21) (12). Current study findings is consistent with a study in Egypt that has indicated more than half of nurses did not have plenty knowledge about the complications of hemodialysis (3).

CONCLUSIONS

This study has found level of knowledge about hemodialysis were considered low

among nurses. Age and level of education were significantly but inconsistently correlated with knowledge about hemodialysis. Nurses did not have proficient knowledge about washing hand, putting on gloves and, the complication of chest pain and shortness of breath.

ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

This study has been approved by the scientific and ethical committee of the College of Nursing, University of Sulaimani. Inform consent was taken from the participant nurses.

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AUTHOR'S CONTRIBUTIONS

Author developed the research design, collection of data and data management, author also wrote the manuscript report.

DISCLOSURE STATEMENT:

The authors declare no conflict of interest.

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