

# Assessment of Nurses' Knowledge of Using Heparin in Hemodialysis Unit

## تقييم معلومات الممرضات حول استخدام الهيبارين في وحدة الديليزة الدموية

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### الخلاصة

**الأهداف:** تهدف الدراسة الى تقييم معلومات الممرضين حول استعمال الهيبارين في غسل الكلى الدموي وتحديد العلاقة بين هذه المعلومات والصفات الديموغرافية للممرضين العاملين في أقسام غسل الكلى الدموي

**المنهجية:** دراسة وصفية تقويمية للفترة من كانون الأول ٢٠١١ إلى أيار ٢٠١٢ لتقييم معلومات الممرضين حول استعمال الهيبارين في الديليزة وقد أجريت الدراسة في مستشفى الشهيد غازي الحريري ومستشفى بغداد التعليمي ومستشفى اليرموك التعليمي وشملت عينة البحث (٣٠) ممرض وممرضة عاملين في أقسام غسل الكلى الدموي حيث جمعت البيانات بعد إن تم بناء استمارة استبانته من قبل الباحثة ذات العلاقة لإغراض الدراسة ومكونة من جزئين رئيسيين جزء شمل صفحة البيانات الديموغرافية ويحتوي (٥) فقرات وجزء شمل صفحة المكونات الأساسية للدراسة ويقع بجزئين رئيسيين ويندرج تحتها (١٣) فقرة فرعية وتم تحديد مصداقية محتوى الاستمارة من خلال (٧) خبراء من ذوي الاختصاص وثباتها من خلال حساب معامل الارتباط (بيرسون) والذي كانت قيمته مقبولة إحصائياً (r:0.858) وجمعت البيانات بطريقة المقابلة المباشرة ، بعد ذلك تم تحليل البيانات من خلال تطبيق التحليل الوصفي (التكرار، النسبة المئوية) فضلاً عن التحليل الاستنتاجي للبيانات (الوسط الحسابي الموزون ومعامل الارتباط بيرسون) باستخدام الحقيبة الإحصائية للعلوم الاجتماعية الإصدار السادس عشر

**النتائج:** وقد أظهرت الدراسة إن غالبية الممرضين هم من الإناث وأن غالبيتهم أعمارهم تتراوح بين (٢٦-٣٠) وأن معظمهم خريجين معاهد التمريض ولهم خبره بالعمل تتراوح بين (١-٥) سنوات وأن معلوماتهم عن عقار الهيبارين متوسطة

**الاستنتاج:** وقد استنتجت الدراسة إن هناك علاقة طردية قوية بين زيادة الخبرة مع العمر وزيادة التدريب مع العمر وكذلك بين التدريب والخبرة ، بينما كانت العلاقة متوسطة مع بقية المتغيرات

**التوصيات:** أوصت الدراسة بضرورة التخصص التمريضي في أقسام الديليزة مع مراعاة فتح دورات تدريبية حول أهمية استخدام الهيبارين في الديليزة وكيفية معالجة مضاعفاته وفق برامج خاصة

### Abstract:

**Objectives:** The study aims to assess the knowledge's of nurses on the use of heparin in the hemodialysis and determine the relationship between this knowledge's and demographic characteristics of the Nurses staff in departments of dialysis

**Methodology:** Descriptive study carried out during the period from December 2011 to May 2012 to assess the knowledge nurses on the use of heparin in hemodialysis study was conducted in a hospital Shahid Ghazi al-Hariri and Baghdad Teaching Hospital and Al Yarmouk Teaching Hospital and included a sample of the research (30) nurses working in hemodialysis departments . Where data was collected after it was built form questionnaire by researcher related to the purposes of the study and is composed of two parts. part one included user demographics and contains (5) items and part two included (13) items. The validity of the questionnaire was examined through (7) experts by calculating the correlation coefficient (Pearson), which was worth an acceptable statistically (r: 0.858) and collected data in a direct interview, then the data were analyzed through the application of descriptive analysis (frequency, percentage ) as well as deductive analysis of the data (arithmetic mean and weighted Pearson correlation coefficient) using statistical bag of Social Sciences, version 16

**Results:** The study showed that the majority of nurses are female and most of them aged between (26-30) and most of them graduates from Institute and they have working experience between (1-5) years and their knowledge of the drug heparin were moderate.

**Recommendations:** The study recommended that nursing specialization in hemodialysis station taking into account training session about the importance of using heparin in hemodialysis and how to deal with the complication according to special programs.

**Conclusions:** The result study finding that there is strong positive relationship between increased of expert and age, increased of training and age also training with expert and there is moderate relationship between the remaining variables.

**Keywords:** Assessment, Nurses, Knowledge, Heparin, Hemodialysis Unit

## INTRODUCTION

During dialysis, the patient, the dialyzer and dialysate bath require constant monitoring because numerous complication are possible, including clotting of circuit. The nurse in the dialysis unit has an important role in monitoring to prevent dialyzer clotting by adjusting heparin doses, supporting, assessing, and educating the patient. More than 280,000

Americans currently receive chronic hemodialysis. The nurse in the dialysis unit has an important role <sup>[1]</sup>

Hemodialysis works by removing blood from the client's arterial access site circulating it through a tubing system to a dialyzer. In the dialyzer, which act like a semipermeable membrane, fluid, electrolytes, and toxins are removed from the blood through a process of convection, osmosis, and diffusion. <sup>[2]</sup>

Nurses will demonstrate proper flushing technique of hemodialysis. Improving the knowledge and skill level of nurses can lead to increased job satisfaction. . <sup>[3]</sup>

The principle of hemodialysis is the same as other methods of dialysis; it involves diffusion of solutes across a semi permeable membrane. Hemodialysis utilizes counter current flow, where the dialysate is flowing in the opposite direction to blood flow in the extracorporeal circuit. Counter-current flow maintains the concentration gradient across the membrane at a maximum and increases the efficiency of the dialysis. . <sup>[4]</sup>

Heparin is a naturally occurring anticoagulant produced by basophils and mast cells. <sup>[5]</sup> Heparin acts as an anticoagulant, preventing the formation of clots and extension of existing clots within the blood. While heparin does not break down clots that have already formed (unlike tissue plasminogen activator), it allows the body's natural clot lysis mechanisms to work normally to break down clots that have formed. Heparin is generally used for anticoagulation for the following conditions: Hemofiltration , Indwelling central or peripheral venous catheters. <sup>[6]</sup>

Heparin a naturally occurring acid substance in several body tissues, especially the liver, it tend to prevent blood from clotting. In pharmacy, usually given by intravenous injection to inhibit coagulation of the blood, widely used in prevention and treatment of thrombosis. <sup>[7]</sup>

Nurses need to be taught how to evaluate all sources of knowledge and must learn how to become critical thinkers, as this will increase the amount and quality of nursing knowledge. Nurses also need, perhaps, to think about practice elements and to learn from experience. Reflective practice seems to be in vogue <sup>[8]</sup> . Objectives of study to assess nurses knowledge toward heparin and to find out the relationship between nurses knowledge and demographic data (age , gander, years of experience)

## **METHODOLOGY:**

A descriptive study used to assess the nurses knowledge toward heparin for hemodylasis patients . The study was carried out during the period from December 2011-May 2012. The present study carried out in Al-Shahid Ghazi Hariri Teaching Hospital, Baghdad Teaching Hospital, Al.yarmok teaching Hospital. A purposive "non probability" sample of (30) nurses who working in the hemodialysis department .

A questionnaire was designed& constructed by the researcher to measure the variables. Such a construction was employed through review of literature. The questionnaire consisted of (2) parts, whereas the first part was demographic data of subjects which contains (5) items (age, gender, level of education, experience years and Number of training sessions. The second part included page basic components of the study and divided into two parts falls below it (13) items were measurement information nurses to use and complication of drug heparin in hemodialysis . These items rated and scored as (3 for I know), (2 for sometime) and (1 for I don't know).

The data were collected through the utilization of constructed questionnaire, interview technique with the nurses working in the hemodialysis care units.

Interview took a time table of the (20) minutes for each nurse. Data were collected in the morning between 8.30 am to 1.30 pm. The determination was conducted during the period of the 14<sup>th</sup> January 2012 to 12<sup>th</sup> March 2012.

The researcher used the appropriate statistical means in the data analysis which include Descriptive data analysis (frequency and percentage) and Inferential data analysis (Mean of scores and Pearson correlation coefficient). Whereas mean of score less than (1.5) was considered low (L), from (1.5-2.5) was considered moderate (M) and greater than (2.5) was considered high (H) . The data were analyzed through the use of statistical package of social Sciences (SPSS) version 16.0

## RESULTS

**Table(1) Distribution characteristic of nurses gender.**

Gender	Frequency	Percent	Cumulative Percent
Male	9	30.0	30.0
Female	21	70.0	100.0
Total	30	100.0	

This table indicated that majority of gender were in female (21) and were accounted (70%).

**Table(2) Distribution characteristic of nurses age.**

age	Frequency	Percent	Cumulative Percent
20-25	4	13.3	13.3
26-30	13	43.4	56.7
31-35	7	23.3	80.0
36-40	2	6.7	86.7
>41	4	13.3	100.0
Total	30	100.0	

This table indicated that majority of age were in group (26-30) and were accounted (43.4%)

**Table(3) Distribution characteristic of nurses education level.**

Education level	Frequency	Percent	Cumulative Percent
Nursing high school graduate	2	6.7	6.7
Institute graduate	18	60.0	66.7
College and above graduate	10	33.3	100.0
Total	30	100.0	

This table shows that majority of education level were in nursing high school graduate (18) were accounted (60%).

**Table(4) Distribution characteristic of nurses experience years.**

Experience years	Frequency	Percent	Cumulative Percent
1-5	13	43.4	43.4
6-10	10	33.3	76.7
11-15	3	10.0	86.7
>16	4	13.3	100.0
Total	30	100.0	

This table shows that majority of experience years 13 (1-5) were accounted (43.4%).

**Table(5) Distribution characteristic of number of training courses.**

Number of training	Frequency	Percent	Cumulative Percent
1-5 courses	19	63.3	63.3
6-10 courses	7	23.3	86.7
11-15 courses	4	13.4	100.0
Total	30	100.0	

This table shows that majority of study sample training (1-5) were accounted (63.3%).

**Table (6) Mean of scores for items of Measurement information nurses on the use of drug heparin in hemodialysis**

No.	Items	I know	Some times	I don't know	M.S	Severity
1	The drug heparin is an important process of hemodialysis	28	2	0	2.93	HS
2	A drug given small amounts of heparin for patients older age	7	22	1	2.20	M
3	Is given special medication heparin injection is not mixed with another drug	27	1	2	2.83	HS
4	warns against giving the drug heparin to women during menstruation	11	19	0	2.37	M
5	beware of giving the drug Heparin for pregnant women	7	19	4	2.10	M
6	the need to record the time to give the drug heparin	26	1	3	2.77	HS
7	The need for an examination PPT	25	4	1	2.80	HS
8	the maximum dose of the drug heparin is given to the patient (1000) units	6	11	13	1.77	M

This table shows that high mean of score in items (1-3-6-7) and moderate mean of score on the remaining items.

**Table (7) Mean of scores for items of Nurses knowledge about complication of heparin**

No.	Items	I know	Some times	I don't know	M.S	Severity
1	Hemorrhage under the skin	7	21	2	2.17	M
2	occurrence of ulcers in the skin	2	23	5	1.90	M
3	hypersensitivity	1	24	5	1.87	M
4	Hyperthremia	7	14	9	1.94	M
5	Itching of skin	5	17	8	1.90	M

This table shows that moderate mean of score on all items.

**Table (8) correlation coefficient between the demographic characteristics with nurses knowledge**

items	gender	age	education	Expert years	Number of training	score
gender	1	-.140-	.431*	-.395*	-.152-	-.121-
age		1	.288	.845**	.794**	.281
education			1	-.026-	.000	-.317-
Expert years				1	.855**	.355
Number of training					1	.495**
score						1

This table shows that there is strong positive relationship between( expert and age, training and age also training with expert )and there is moderate relationship between the remaining variables.

## DISCUSSION

The result indicated that majority of gender were in female (21) and were accounted (70%). (Table 1)

In the present study it was found that encourage the practice of the nursing profession are females more than males and this is happening in Iraq and the world and this confirms the outcome of the study that more females than males

The result study shows that the most of them age were in group (26-30) were accounted (43.4%) . (Table 2)

This study sample supported by another study which indicated that While the nurses in our study had significant nephrology experience, the mean age of the sample was 45 years, representing a nursing workforce in hemodialysis settings that is consistent with the aging U.S. RN workforce. Moreover, the percentage of nurses under the age of 30 and having the potential for a long-term career in nephrology was quite low (5%).<sup>[9]</sup>

The result of table (3) shows that majority of education level were Institute graduate (18) were accounted (60%).

Large number of nursing institutes in Iraq, whether affiliated to the Ministry of Higher Education, as well as affiliated to the Ministry of Health and the small number of nursing colleges compared with the number of institutes led to the majority of the study sample in educational level are graduates of institutes

The result of present study finding that majority of experience years 13 (1-5) were accounted (43%). (Table 4) .

This study sample supported by another study who indicated that percent of nursing staff with more than 3 years experience) had a significantly lower risk of arteriovenous fistula and graft failure compared to facilities with relatively inexperienced staff (i.e., percent of nursing staff with less than a year of experience) <sup>[10]</sup>. Certainly from experience of practice it is clear that the culture and accepted practices and beliefs of nursing in practice play a profound role in shaping what nurses describe as knowledge and in the way knowledge is disseminated. <sup>[11]</sup>

The result finding show that majority of training 19 (1-5) courses were accounted (63.3%). (Table 5) .

Since the majority of the study sample are young and the majority of them did not go for their long years that led to receiving a few sessions as the program prepared by the Ministry of Health.

In addition table (6) shows that high mean of score in items (1-3-6-7) and moderate mean of score on the remaining items.

This study sample supported by researcher who indicated that nephrology nurses must maintain a broad nursing knowledge base to provide proper care for patients who may range from the very young to the very old. Credentialing for nephrology nurses is typically voluntary, although it may be required by some employers <sup>[12]</sup>

Table (8) shows that there is strong positive relationship between ( expert and age, training and age )that's mean when increased expert of nurses with increase of age in working of hemodialysis. with increase of age in working of hemodialysis.nursing knowledge comes from a variety of sources including both theoretical and practice perspectives - clinical decisions should be based on what is evidence rather than just opinion or belief. practice and teaching it is essential in ensuring the provision of high-quality care for patients. <sup>[13]</sup>

The result table (7) shows that moderate mean of score on all items.

Some nurses have been found to have inadequate knowledge of a medical condition although this type of knowledge has traditionally been the domain of doctors rather than nurses. <sup>[14]</sup>

These mean when increased age of nurses lead to increase in years of experience and if increase of the nurses age this indicate to increase in training of the nurses and then when increase training courses of the nurses lead to increase experience of year .

## **CONCLUSIONS:**

The result study finding that majorities of the sample were female , and most of them age in group (26-30) , the majority of study sample of experience years 13 (1-5) , shows that majority of sample were training 19 (1-5) courses and moderate mean of score in nurses knowledge towered use heparin.

## **RECOMMENDATION:**

- 1- Need Specialist nurses in hemodialysis
- 2- Educational program for nurses working in hemodialysis towered use drug of heparin.
- 3- Increase training about use medication in hemodialysis specific heparin.

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