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Assessment of Nurses Knowledge and Practice Regarding Hemodialysis in Aldamer, Atbara And Barber Centers 2018

Research Submitted For Partial Fulfillment the degree of B.Sc.

in Nursing

موجود بالرقم 24

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مكتبة الكلية
51

July 2018

الآية

قال تعالى:

﴿اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ (1) خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ(2) اقْرَأْ وَرَبُّكَ الْأَكْرَمُ(3)الَّذِي عَلَّمَ بِالْقَلَمِ (4)عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ(5)﴾

صدق الله العظيم

سورة العلق – الآية(1-5)

Dedication

All our thank firstly and lastly to our great (Allah) from blessing

And kindness flow through all our life.

The essence of like meaning of humanity

Our Mothers

To: all whom we love and respect the one who though how to be available member in the community

Our Fathers

Dear: Brothers and sisters who gave us the sense of everlasting worth

To our teachers

Acknowledgement

All thanks to our God Allah from the start to the end ...

And we grateful to all those who contribute their time and effort to help me to make this research as accurate and useful as possible

All nurses of Aldamer, Atbara and Barber hospitals

We would like to acknowledge the contribution of our supervisor

Dr: Asma Hassan Ahmed Abdalrahim

Who guide us throughout our way

We thanks also extended to our colleague, teachers, friends, sisters, and brothers.

Abstract

Back ground: hemodialysis is common renal replacement therapy offered in hospital units, Nurses represent to provide care and observation pre, during, and post hemodialysis.

Objective: the study aim is to assess knowledge and practice of nurses regarding hemodialysis of renal failure patients .

Study design: it was descriptive cross sectional, hospital based study ,conducted in the period from march to July 2018 at the river Nile hospital.

Study population: hemodialysis nurses

Data analysis: the study was analyzed by using statistical package of social of social science (SPSS) observational check list and questionnaire were used to assess knowledge and performance of nurses,40 nurses were the total number of study.

Result: total number of participant in research were 40 nurses, (80%) of nurses were knowledgeable regarding allowed fluid volume per day, and (62.5%) were not knowledgeable about patient diet. (100%) of nurses were knowledgeable about intradialytic complication and psychosocial problem of patient. they had a poor knowledge and practice regarding infection control measurements, and few of them use personal protective equipment in septic practice.

Conclusion: the researcher concluded that majority of studied nurses were knowledgeable regarding hemodialysis, but had a poor practice regarding infection control measures in hemodialysis unit.

Recommendation we recommended that continues training to keep nurses up dated, availability of all facilities and equipment's for applying infection control and using of standard precaution.

المستخلص

خلفية: الإستصفاء الدموي هو علاج بديل للفشل الكلوي يقدم في وحدات المستشفى ، وتتمثل الممرضات في توفير الرعاية والمراقبة قبل وأثناء وبعد الإستصفاء الدموي .

الهدف: تم اجراء الدراسة لتقييم معرفة وممارسة الممرضات فيما يتعلق بالإستصفاء الدموي .

التصميم: تم تصميم دراسة وصفية مقطعية نوعية مستنده على المستشفى في الفترة من مارس 2018 حتى يوليو 2018في مستشفيات ولاية نهر النيل.

التحليل: تم تحليل البيانات باستخدام حزمة احصائي العلوم الاجتماعية .

النتيجة: 80% من الممرضات كانوا على دراية بحجم السوائل المسموح به في اليوم الواحد ، و 62.5٪ لم يكونوا على دراية بنظام الحمية . و كان 100٪ من الممرضات على دراية حول المضاعفات التي تحدث اثناء الإستصفاء الدموي، والمشكلة النفسية والاجتماعية للمريض . كانت لديهم معرفة وممارسة ضعيفة فيما يتعلق بقياسات مكافحة العدوى ، وعدد قليل منهم يستخدمون معدات الحماية الشخصية في الممارسات التعفنية .

الخاتمة : خلصت الدراسة إلى أن غالبية الممرضات المدروسات على دراية بالتحاليل الدموية ، ولكن كان لديهم ممارسة ضعيفة فيما يتعلق بتدابير مكافحة العدوى في وحدة الإستصفاء الدموي .

التوصيات : توصي الدراسة بمواصلة التدريب لإبقاء الممرضات مواكبات ، وتوافر جميع المرافق والمعدات اللازمة لتطبيق مكافحة العدوى والاحتياطات القياسية.

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List of Abbreviations

Abbreviations	Meaning
ESRD	End stage of renal disease
ARF	Acute renal failure
Ml	Milliliter
BUN	Blood urea nitrogen
IV	Intra venous
CKD	Chronic kidney disease
E.g.	For example
Min	Minute
m2	Square meter
GI	Gastrointestinal tact
mEq	Milli equivalent
L	Liter
Mg	Milligram
DL	Deciliter
G	Gram
mmHg	Millimeters of mercury
Kg	Kilogram
AEIOU	Acidosis Electrolytes Intoxications Overload Uremia
pH	Hydrogen Ion Concentration
CRRT	Continuous renal replacement therapy
CAVH	Continuous Arterio Venous Hemodialysis
CVVH	Continuous Veno Venous Hemofiltration
CVVHDF	Continuous Veno Venous Hemodialysis Fistula
CAVHD	Continuous Arterio Venous Hemodialysis
Na	Sodium
K	Potassium
Ca	Calcium
Mg	Magnesium
Cl	Chloride
HD	Hemodialysis
AVF	Arterio Venous Fistula
AV	Arterio Venous

PTFE	Poly Tetra Fluoro Ethylene
Cm	Centimeter
CVC	Central Venous Catheter
SVC	Superior Vena Cava
AVG	Arterio Venous Grafts

Chapter One

Introduction

Research problem

Justification

Objectives

Introduction

1.1 Introduction:-

Renal failure is an inability of the kidney to maintain normal function, so that waste products and metabolites accumulate in the blood, this affects most of the body's systems because of its important role in maintaining fluid balance ,regulating the electrochemical composition of body fluids(1).

The use of renal replacement therapies becomes necessary when the kidneys can no longer remove wastes, maintain electrolytes, and regulate fluid balance ,The main renal replacement therapies include the various types of dialysis and kidney transplantation ,dialysis is usually initiated when the patient cannot maintain a reasonable lifestyle with conservative treatment (2).

Hemodialysis is removal of certain elements from the blood by virtue of the difference in rates of their diffusion through a semi permeable membrane while being circulated outside the body, the process involves both diffusion and ultra filtration.(3)

More than 90% of patient requiring long term renal replacement therapy are on chronic hemodialysis (4).

A dialysis nurse must have exceptional knowledge of the processes that take place in the bodies of their patient, and must have expert knowledge of the proper function of all dialysis related equipment and keep these pieces of equipment in proper working order (5).

1.2 Research problem:-

Chronic renal failure will end up with dialysis patients with under hemodialysis needs professional nursing personal poor knowledge ,practice ,and communication causes poor out come in patient quality of life and high mortality rate .

1.3 Justification :-

Hemodialysis is the most common treatment of ESRD, and the dialysis nurses should be knowledgeable, skillful, and updated to prevent hemodialysis complications.

1.4 Objectives:-

General Objective:-

To assess nurses knowledge and practice regarding hemodialysis in Atbara, Barber, and Aldamer centers.

Specific objectives:-

-To assess knowledge of nurses towards pre dialysis , intra-dialysis and post dialysis care.

-To evaluate the nurses performance in hemodialysis.

-Assess nurses' knowledge and practice toward infection control and PPE uses.

-To assess knowledge and practice of nurses regarding machine preparation.

Chapter Two

Literature Review

Literature Review

2.1 Kidney failure:-

Kidney failure known as end-stage kidney disease, is a medical condition in which the kidneys no longer work (6) (It is divided into acute kidney failure (cases that develop rapidly) and chronic kidney failure (those that are long term)(7) ,Symptoms may include leg swelling, feeling tired, vomiting, loss of appetite, or confusion.(8), Complications of acute disease may include uremia, high blood potassium, or volume overload.(9) ,Complications of chronic disease may include heart disease, high blood pressure, or anemia. (10)

2.2 Dialysis :-

Dialysis is the process of removing excess water, solutes and toxins from the blood in those whose native kidneys have lost the ability to perform these functions in a natural way, This is referred to as renal replacement therapy (11).

2.2.1 Indications of dialysis is mnemonic AEIOU - indications for dialysis (Acidosis metabolic acidosis with a pH< 7.1,Electrolyteshyperkalemia > 6.5 mEq/L refractory to treatment or rapidly rising levels in potassium, intoxications with dialyzable drug, including salicylates, lithium, isopropanol, methanol, and ethylene glycol, overload volume overload that does not respond to dieresis especially with increased oxygen requirements ,uremia elevated BUN with signs of uremia, such as uremic bleeding, encephalopathy, pericarditis, and neuropathy Serum creatinine> 10 mg/dL) (12).

2.2.2 Methods of dialysis Peritoneal dialysis(Intermittent peritoneal dialysis (acute or chronic) Continuous ambulatory peritoneal dialysis ,Continuous cycling peritoneal dialysis—uses automated peritoneal dialysis machine overnight with prolonged dwell time during day ,Hemodialysis, Continuous renal replacement therapy (CRRT)—this includes special procedures, such as

continuous arteriovenous hemofiltration (CAVH), continuous venovenous hemofiltration (CVVH), continuous venovenous hemodialysis filtration (CVVHDF), and continuous arteriovenous hemodialysis filtration (CAVHD). These use extracorporeal blood circulation through a small volume, low resistance filter to provide continuous removal of solutes and fluid in the intensive care setting , CRRT is indicated for such conditions as acute renal failure, heart failure, pulmonary edema, cerebral edema , anasarca , acute electrolyte disorders, catabolic states ,hypotension requiring vasopressin or intra-aortic balloon pump therapy, septic shock, hemodynamic instability, and metabolic crisis , CRRT is a slower and less aggressive process for removal of fluid and solutes than hemodialysis ; it is also better tolerated by critically ill patients ,CRRT may be used when the patient cannot tolerate the hemodynamic and metabolic instability of hemodialysis or has abdominal trauma or scar tissue that prohibits peritoneal dialysis, CVVH and CVVHDF are accomplished by insertion of a large-gauge double-lumen catheter into the internal jugular, subclavian , or femoral vein. A roller-type pump is used to propel blood through the system, and anticoagulation may be used to prevent clotting. This is the current standard of care because of consistent blood flow rates (13).

2.2.3 Hemodialysis this type of dialysis achieves the extracorporeal removal of waste products such as creatinine and urea and free water from the blood when the kidneys are in a state of kidney failure. Hemodialysis is one of three renal replacement therapies (the other two being kidney transplant and peritoneal dialysis (14).

2.2.4 Hemodialysis procedure Patient circulation is accessed ,unless contraindication , heparin is administered, dialysis solution surrounds the membranes and flows in the opposite direction, dialysis solution is (highly purified water ,Na. K .Ca .Mg . Cl and Dextrose , Either bicarbonate or acetate , to maintain a proper ph, via the process of diffusion waster are

removed in the form of solutes (metabolic waster, acid base components and electrolytes) , Solute waster can be discarded ,Ultra filtration removes water from the blood .after cleansing , the blood returns to the client via the access(15).

2.2.5 Vascular Access vascular access is the most important component for hemodialysis (HD), without which, dialysis cannot be provided. Further, the quality of the vascular access determines the patient outcome in terms of morbidity and mortality. A poorly functioning access increases the risk of hospitalization and shortens the survival expectancy and is associated with increased cost ,quick examination of an access and surrounding areas will reveal many clues of underlying problems, inspection of the body of access should look for signs of infection such as redness, pus, bleeding, dermatitis, or an aneurismal dilatation, as discussed below, observation of collapse of a dilated fistula upon raising the arm, the arm-raising. test, is normally present, and a lack of collapse may suggest clotting or downstream stenosis, examination of the distal arm, particularly of the hands (for access that are located in upper and forearms), for presence or absence of skin changes, swelling, and abnormal coloration, is important to confirm good distal perfusion (16).

Vascular access choice is between AVF and a synthetic bridging graft. An AVF consists of a subcutaneous anastomosis between an artery and vein, usually in the forearm, which matures over several months by venous dilatation and thickening of the vein's wall (arterializations). A graft is an artificial connection between an artery and vein, usually made of PTFE (polytetrafluoroethylene, Teflon®) or, increasingly, biological material such as bovine veins. A tunneled central line can be permanent vascular access, especially in patients with small vessels, but should not be first-line access of choice ,**Fistulae** good evidence for long-term patency, lower complication rates, lower morbidity, and improved performance (flow) with time in fistulae

rather than grafts, choice of location for AVF (in order of preference) radio cephalic (wrist),radiobasilic (wrist) ,brachiocephalic (elbow),brachiobasilic transposition (involves freeing and transposition of basilica vein at time of AVF formation) ,An AVF can be created after the failure of a bridge graft when the proximal veins have dilated. AVFs should be constructed well in advance of need (at least 3–4 months), Up to 40% of AVFs may fail to mature, Synthetic **grafts** Should not be first choice for permanent access

Usually made from PTFE. The material is porous, allowing in growth of fibroblasts and incorporation of the graft into the subcutaneous tissues ,Can also be native transposed veins, bovine umbilical or mesenteric veins , or other synthetic or natural materials. The most common approach uses a forearm loop between the brachial artery and cephalic vein, extending 10cm down the forearm. Linear radio cephalic forearm grafts, upper arm loop grafts, and upper thigh femoral loops are also placed Short grafts can deteriorate from repeated puncture at a limited number of sites. Long grafts have increased pressure, reduced flow, and increased thrombosis risk, Grafts are technically easy to cumulate can be used soon ,after insertion (14 days ideally, but can be earlier), and can be easier to insert and repair ,average flow through a forearm graft is 800–1200mL/min. Fistula flows are more variable, but should always be >600mL/min (16).

Central venous catheters (CVC) for hemodialysis may be non tunneled (designed for acute episodes and temporary duration) or tunneled (for more chronic use over a longer duration). Acute CVC are designed to be placed with a minimum amount of effort. They generally have double lumens, no subcutaneous cuff or locking device and utilize a short linear tunnel. Tunneled CVC are dual lumen most often composed of silicone, polyurethane, polyethylene or polytetrafluethylene (PTFE) and contain a subcutaneous dacron cuff for tissue in-growth or a plastic ''grommet'' to immobilize the catheter below the skin surface. CVC are typically placed percutaneous into a

large central vein (internal jugular or subclavian vein) through the superior vena cava (SVC) with the goal of placing the tips of the catheter at the junction of the SVC and the right atrium. Alternative venous access points are external jugular, subclavian, and femoral veins. Right sided catheters malfunction less often than left sided catheters and subclavian catheters should be avoided to help prevent subclavian stenosis. Patients with catheters have a significantly higher mortality risk than patients with arteriovenous fistula (AVF) or arteriovenous grafts (AVG) (17).

2.3 Infection control in dialysis unit:-

Hand hygiene observation, Perform observations of hand hygiene opportunities monthly and share results with clinical staff , catheter/vascular access care observations ,Perform observations of vascular access care and catheter accessing quarterly, Assess staff adherence to aseptic technique when connecting and disconnecting catheters and during dressing changes, Share results with clinical staff ,and staff education and competency, Train staff on infection control topics, including access care and aseptic technique. Perform competency evaluation for skills such as catheter care and accessing every 6-12 months and upon hire. See Patient education/engagement, Provide standardized education to all patients on infection prevention topics including vascular access care, hand hygiene, risks related to catheter use, recognizing signs of infection, and instructions for access management when away from the dialysis unit ,catheter reduction, incorporate efforts (e.g., through patient education, vascular access coordinator) to reduce catheters by identifying and addressing barriers to permanent vascular access placement and catheter removal, chlorhexidine for skin antisepsis, use an alcohol-based chlorhexidine (>0.5%) solution as the first line skin antiseptic agent for central line insertion and during dressing change, Povidone-iodine (preferably with alcohol) or 70% alcohol are alternatives for patients with chlorhexidine intolerance, catheter hub disinfection ,Scrub catheter hubs with an appropriate antiseptic

after cap is removed and before accessing. Perform every time catheter is accessed or disconnected. If a closed needleless connector device is used, disinfect connector device per manufacturer's instructions, antimicrobial ointment, Apply antibiotic ointment or povidone-iodine ointment to catheter exit sites during dressing change. See information on selecting an antimicrobial ointment for hemodialysis catheter exit sites (selecting an antimicrobial ointment), use of chlorhexidine-impregnated sponge dressing might be an alternative (18).

On a typical day, dialysis nurses can be found keeping patient's records, administering dialysis treatments, setting up treatment plans, observing patients, consulting with other healthcare workers, cleaning medical equipment, and watching for any adverse reactions (19).

A hemodialysis nurse has very specific duties and responsibilities, including, Talking with their patients to understand their overall condition and whether there have been any changes. Educate their patients about their health condition and what their various treatment options are. Checking their patients' vital signs. Overseeing the entire hemodialysis procedure, and monitoring the patient's comfort and condition throughout, ensuring that their patients are correctly taking the medications their doctors have ordered for them Noting their patients' response to hemodialysis treatment and medications. reviewing all the various information regarding the patient, including their lab work and activities, and informing the patient's doctors about any changes in condition that need to be addressed, assisting their patients in following-up with their transplant center, getting the appropriate questions asked and answered, coordinating with and supporting their patient's entire care team, including the primary doctor, dietician, and more, to ensure that the patient receives the absolute best care possible, over time, hemodialysis nurses form close relationships with their patients' who depend upon them in order to receive the care they need in order to function well in

their lives ,patients learn that they can turn to their hemodialysis nurse any time they want to find out why they are feeling a certain way, how to clarify a doctor's orders or instructions ,answers to specific health questions and much more, hemodialysis nurses encourage their patients to be curious and well Informed about their condition and their treatment so that they are better able to stabilize their condition and move forward smoothly in their overall treatment plan, their compassionate care is often what helps their patients through some of the most difficult situations they will encounter in their life, which is why many hemodialysis nurses remain in close contact with their patients long after they have received successful kidney transplants and moved entirely aware of needing any sort of dialysis treatment (20)

2.4 Complications of hemodialysis:-

Access-related complication eg. local infection, endocarditis, osteomyelitis, creation of stenosis, thrombosis or aneurysm ,hypotension (common), cardiac arrhythmias, air embolism, nausea and vomiting, headache, cramps ,fever due to infected central lines, dialyzer reactions anaphylactic reaction to sterilizing agents ,heparin-induced thrombocytopenia, hemolysis, disequilibration syndrome(restlessness, headache, tremors, fits and coma),depression (21).

2.5 Nursing Care in hemodialysis:-

2.5.1 Predialysis assessment before the initiation of hemodialysis the patient and machine are both evaluated .The patient physiological status is assessed to ascertain the need to adjust the dialysis orders or prescribed medications .The machine parameters are assessed to ensure that prescribed procedure is implemented correctly ,Predialysis assessment include fluid status, weight, Setting and standing blood pressure ,temperature, pulse, and respiration including apical and peripheral pulse evaluation, Skin color, temperature and integrity ,vascular access patency and freedom of bleeding and infection, it is necessary to ensure that the machine functions have been checked and are

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working correctly, all extracorporeal alarms should be tested to ensure that they respond appropriately, arterial pressure ,venous pressure , and air detector alarms should all cases the blood pump to stop and the venous line clamp to close .In addition the conductivity and temperature of the dialysate should be tested to insure that they are within the proper range ,these alarms must be working at all times so that if any problem arises ,the dialysate will be diverted from the dialyzer and a major complication will be avoid ,Finally the dialysate concentrate should be adequate to meet the patient treatment(22).

2.5.2 Post dialysis Assessment assess and document vital signs, weight, and vascular access site condition, Rapid fluid and solute removal during dialysis may lead to orthostatic hypotension, cardiopulmonary changes, and weight loss, monitor blood urea nitrogen, serum creatinine, serum electrolyte, and hematocrit levels between dialysis treatments ,assess for dialysis disequilibrium syndrome , with headache , nausea and vomiting , alter level of consciousness and hypertension .Assess for other adverse responses to dialysis such as dehydration nausea and vomiting , muscle cramps ,or seizure activity, assess for bleeding at the access site or elsewhere ,use standard precautions at all times, Renal failure and heparinization during dialysis increase the risk for bleeding, If a transfusion is given during dialysis , monitor for possible transfusion reaction (e.g.,chill and fever, dyspnea ,chest, back, or arm pain, and itching (22).

2.5.3 Nursing intervention for hemodialysis explain procedure to client, cannulating and connecting to HD machine , monitor hemodynamic status continuously ,monitor acid-base balance, monitor electrolytes ,insure sterility of system, maintain a closed system, discuss diet and restriction on(protein intake sodium intake potassium intake ,fluid intake),reinforced adjustment to prescribed medications that may be affected by the process of hemodialysis ,monitor for complications of dialysis related to;(Arteriosclerotic

cardiovascular disease ,congestive heart failure , Stroke , infection, gastric ulcers, hypertension ,calcium deficiencies[bone problems such as aseptic necrosis of the hip joint],anemia and fatigue depression) ,dry weight (23).

A study that conducted in Abha City – Saudi Arabia, 2015 by Adel Saeed Al Qahtani and Metrek Ali Almetrek , concluded that nurses knowledge is deficient but their performance is significantly related to their attitudes. nurses tend to be adherent to certain infection control practices than the others. Training in infection control should address the gaps in performance with emphasize on creating favorable attitude (24).

A study that conducted in Egypt Zagazig Universities by Ebrahim A.A. Al-Mawsheki, Mona Hassan Ibrahim, concluded that majority of studied nurses had satisfactory total knowledge regarding hemodialysis while the studied nurses had un satisfactory practice regarding care for patient in hemodialysis (25).

A study that conducted in Sudan at Governmental Hospitals in Khartoum State 2015 by Ohood Mohammed Ahmed Hamed and concluded that nurses in dialysis units in the current study showed moderate level of knowledge and practice towards care of hemodialysis patients, but there is a need for more efforts regarding training and patients counseling (26).

Chapter Three

Materials and Methods

Materials and Methods

3.1 Study design:-

Descriptive cross sectional, hospital based study.

3.2 Study area & setting:-

The study was carried out in Aldamer, Atbara, and Barber teaching hospitals hemodialysis centers.

The three cities located in Sudan, River Nile state.

Atbara city, Which is located 310 km north to Khartoum, and have a strategically location and that make it the point of convergence of railway lines , there is three governmental hospitals, Atbara teaching hospital , military hospital and police hospital .

There were six rooms in Atbara teaching hospital consist of 19 beds and machines.

Aldamer, which is located 13 km south to Atbara. It is the capital of the River Nile state, and its one of the oldest administrative and historical cities in Sudan. Aldamer teaching hospital is the only governmental hospital, and consist of 7 rooms each room contain 2 machines and beds.

Barber, which located in the center of the River Nile State on eastern branch of the River Nile, north to Atbara city about 36 km.

Barber teaching hospital is the only governmental hospital, and consist of 3 rooms , 14 machines and beds .

3.3 Study period :-

From march to July 2018

3.4 Study population :-

All nurses working in Atbara, Aldamer, Barber hemodialysis centers from both sex .

3.5 Sample size:-

Total coverage sample, 40 nurses were available during data collection.

3.6 Inclusion criteria:-

Qualified nurse (Diploma, B.Sc, and M.Sc).

3.7 Exclusion criteria:-

Staff not available during data collection.

3.8 Data collection Tools:-

Questionnaire and check list was used.

3.9 Data collection technique:-

Instructed questionnaire based on literature was used to Interview the participant throughout the three shift.

Check list based on infection controls and occupation health was used to evaluate nurses practice

3.10 Data Analysis:-

The data were coded and analyzed by soft word computer SPSS version .

3.11 Ethical consideration:-

Approved from faculty committee research, The original director and the head nurses of the hospital were informed and agreed to collect data.

Informed verbal consent explain the purpose of the study and privacy of information for each participant.

Chapter Four

Results

Results

Table no (1) Distribution of study group regarding age, gender, level of education and years of experience:

Personal data	Variable	Frequency and percentage	Total
Age	20-<30	20 (50%)	40 100%
	30-<40	14 (35%)	
	40 and above	6 (15%)	
Gender	Male	7 (17.5%)	40 100%
	Female	33 (82.5%)	
Qualification	Diploma	8 (20%)	40 100%
	Bachelor	28 (70%)	
	Master	4 (10%)	
	PHD	0 (0%)	
Years of experience	1-3	17 (42.5%)	40 100%
	4-6	9 (22.5%)	
	6-10	7 (17.5%)	
	>10	7 (17.%%)	

Table (2) Distribution of study group regarding training course ,period of training and vaccination against HBV:

Personal data	Variable	Frequency and percentage	Total
Training course	Not training	19 (47.5%)	40 100%
Period of training	>3 months training	9 (22.5%)	
	<3 months training	12 (30%)	
Vaccination Against HBV	Vaccinated	23 (57.5%)	40 100%
	Not vaccinated	17 (42.5%)	

Table (3) Distribution of study group regarding knowledge regarding fluid volume, fluid composed ,management of fluid overload and diet:

Question	Correct answer	incorrect answer	Total
Allowed fluid volume	32 (80%)	8 (20%)	40 100%
Fluid composed	40 (100%)	0 (0%)	40 100%
Management of fluid overload	29 (72.5%)	11 (27.5%)	40 100%
Diet	15 (37.5%)	25 (62.5%)	40 100%

Table (4)Distribution of study group regarding knowledge regarding medication shouldn't taken intra dialysis ,routine investigation and virology:

Question	Correct answer	incorrect answer	Total
Medication	24 (60%)	16 (40%)	40 100%
Routine investigation	19 (47.5%)	21 (52.5%)	40 100%
Virology	27(67.5%)	13 (32.5%)	40 100%

Table (5) Distribution of study group regarding knowledge regarding intradialytic complication, and psychosocial problem:

Question	Correct answer	incorrect answer	Total
Intradialytic complication	40 (100%)	0 (0%)	40 100%
Psychosocial problem	40 (100%)	0 (0%)	40 100%

Table (6) Distribution of study group regarding pre dialysis practice & fistula assessment

Pre dialysis	Performed	Not Performed	total
Assess patient weight	37 (92.5%)	3 (7.5%)	40 (100%)
Assess vital signs	27 (67.5%)	13 (32.5%)	40 (100%)
Assess Pallor	0 (0%)	40 (100%)	40 (100%)
Assess Bleeding	0 (0%)	40 (100%)	40 (100%)
Assess Lower limb edema	4 (10%)	36 (90%)	40 (100%)
Assess access patency	33 (82.5%)	7 (17.5%)	40 (100%)
Assessing fistula for: Redness	2 (5%)	38 (95%)	40 (100%)
Hotness	2 (5%)	38(95%)	40 (100%)
Swelling	3 (7.5%)	37 (92.5%)	40 (100%)
Pain	8 (20%)	32 (80%)	40 (100%)
Presence of Thrill	16 (40%)	24 (60%)	40 (100%)

Table (7) Distribution of study group regarding practice regarding infection control prevention measures , dressing solution & reinfusion preparation according to BP reading

Practice	Variable	Performed	Not Performed	Total
CVC	Hand washing	4 (10%)	36 90%	40 (100%)
	Wearing surgical gloves	13 (32.5%)	27 67%	40 (100%)
	Removing plaster with assistance	0 (0%)	40 100%	40 (100%)
	Assessment of wound	9 (22.5%)	31 77.5%	40 (100%)
	Cleaning in one way	4 (10%)	36 90%	40 (100%)
Solution used	Normal saline	6 (15.0 %)	34 (85%)	40 (100%)
	Sprit	10 (25.0 %)	30 (75%)	40 (100%)
	Iodine	24 (60.0 %)	16 (25%)	40 (100%)
Re infusion preparation regarding BP	Normal saline	26 (65.0%)	14 (35%)	40 (100%)
	Dextrose	7 (17.5%)	33 (82.5%)	40 (100%)
	Dextrose with normal saline	7 (17.5%)	33 (82.5%)	40 (100%)

Table (8) Distribution of nurses practice regarding machine preparation:

Preparation of machine	Frequency & Percent	Total
Nurse	27 (67.5%)	40 (100%)
Technical engineer	13 (32.5%)	

Table (9) Distribution of nurses practice regarding intra dialysis:

Intra dialysis	Practice	Performed	Not performed	Total
	Check blood pressure	36 (90%)	4 (10%)	40 (100%)
	Communication with patient	27 (67.5%)	13 (32.5%)	40 (100%)
	Administer first dose of heparin within first Ten minutes	40 (100%)	0 (0%)	40 (100%)
	Second dose of heparin in mid time of dialysis	40 (100%)	0 (0%)	40 (100%)
	Patient parameter	34 (85%)	6 (15%)	40 (100%)
	Machine alarm	39 (97.5%)	1 (2.5%)	40 (100%)

Table (10) Distribution of nurses practice regarding post dialysis:

Post dialysis	Variable	performed	Not performed	Total
	Hand washing	5 (12.5%)	35 (87.5%)	40 (100%)
	Check blood pressure	27 (67.5%)	13 (32.5%)	40 (100%)
	Check weight	21 (52.5%)	19 (47.5%)	40 (100%)
	Administer Eprex	20 (50%)	20 (50%)	40 (100%)
	Teach patient about importance taking medications	2 (5%)	38 (95%)	40 (100%)
	Provide dietary information for patient	4 (10%)	36 (90%)	40 (100%)
	Provide psychological support for patient	8 (20%)	32 (80%)	40 (100%)

Table (11) Distribution of nurses in septic room & practical team:

Septic practice	Variable	performed	Not performed	Total
And use of PPE	Working in septic	16 (40%)	24 (60%)	40 (100%)
	Sterile gloves	10 (62.5%)	6 (37.5%)	16 (100%)
	Wearing gown	0 (0%)	16 (100%)	16 (100%)
	Shoes	0 (0%)	16 (100%)	16 (100%)
	Safety glasses	0 (0%)	16 (100%)	16 (100%)
	Hats	0 (0%)	16 (100%)	16 (100%)
	Mask	0 (0%)	16 (100%)	16 (100%)
	Changing gloves from Hepatitis B to Hepatitis C patient	1 (6.25%)	15 (93.7%)	16 (100%)
	Observe patient condition	9 (56.25%)	7 (43.7%)	16 (100%)
	Inform patient about transmission	2 (12.5%)	14 (87.5%)	16 (100%)
	Check virology	8 (50%)	8 (50%)	16 (100%)

Results

Total number of participant in research were 40 nurses .

Table (1) Shows study group ages were 50% of them between 20- <30 years old, while 35% were between 30-<40 years old, and 15% were 40 and above years old, majority of nurses were females 82.5% and 17.5% were males, their qualification was 20% diploma, while 70% bachelor, 10% have master degree and 0% PHD , 42.5% of nurses their years of experience between 1-3 years, while 22.5% their experience were between 4-6 years, 17.5% experience were between 6-10 years ,and 17% experience >10 years.

Table (2) Shows that 47.5% of nurses weren't attended training course before , while. 22.5% of nurses attended training program more than three months, and 30% were attended training program less than three months, 57.5% more than half of nurses were vaccinated against HBV ,and. 42.5% were not vaccinated against HBV.

Table (3) Shows 80% of nurses were knowledgeable, and. 20% were not knowledgeable about allowed fluid volume, 100% were knowledgeable and 0% were not knowledgeable about fluid composed, 72.5% were knowledgeable about management of fluid overload and 27.5% were not knowledgeable,

37.5% were knowledgeable about patient diet and 62.5% were not knowledgeable.

Table (4) Shows. 60% were knowledgeable about medication shouldn't taken intradialytic and 40% were not knowledgeable, 47.5% were knowledgeable about routine investigation and 52.5% were not knowledgeable, 67,5% were knowledgeable about check of virology and. 32.5% were not knowledgeable,

Table (5)Shows 100% of nurses were knowledgeable about intradialytic complication and 100% were knowledgeable about psychosocial problem of patient.

Table(6) Shows that Pre dialysis nurses practice was 92.5% assess patient weight and 7.5% didn't assess patient weight ,while 67.5%of nurses were assess vital signs and 32.5% were not assess vital signs , 100% of nurses didn't assess patient for pallor and bleeding ,while(10%)assess lower limb edema and 90% didn't assess lower limb edema, 82.5 % of s study nurses were assess access patency and 17.5 % were not assess access patency , while 5% assessing fistula for redness ,while 95% didn't assess redness, 5% assess hotness and. 95% didn't assess hotness ,7.5% of nurses assess swelling ,and 92.5% didn't assess swelling , 20% of nurses ask patient for pain, and 80% didn't ask patient for pain, while 40% of nurses assess presence of thrill ,and 60% didn't assess presence of Thrill.

Table(7) Shows that nurses practice regarding infection control measures was 10% of study nurses were doing hand washing and 90% didn't did hand washing, 32.5% of nurses wearing surgical gloves and 67.5% didn't wearing surgical gloves, while 100% of nurses didn't removing plaster with assistance, 22.5% of nurses assessment of wound and 77.5% didn't assessment of wound , 10% of nurses cleaning wound in one way, 90% didn't cleaning wound in one way, 15% use normal saline in dressing , while 25% use sprit and 60% use iodine , 65 % of study nurses use normal saline in reinfusion preparation according to Bp reading , while 17.5% use dextrose and dextrose with normal saline.

Table (8) Shows that 67.5% preparation of machine don by nurses and. 32.5% don by technical engineer.

Table(9) Shows that intra dialysis nurses practice was 90% of nurses check blood pressure ,and 10% didn't check blood pressure ,67.5% communicate with patient ,and 32.5% didn't communicate with patient , while100% 0f nurses administer first dose of heparin within first ten minutes , and second dose of heparin at mid dialysis time, 85 % of nurses response to patient

parameter, 15% didn't response to patient parameter, while 97.5% of nurses response to machine alarm, and 2.5% didn't response to machine alarm.

Table(10) Shows that post dialysis nurses practice was12.5% of study nurses did hand washing , and 87% didn't did hand washing ,While 67.5% of nurses check blood pressure ,and 32.5 didn't check blood pressure, 52.5% of nurses check patient weight ,and 47.5% didn't check patient weight , 50% of nurses were administer eprex ,and 50% didn't administer eprex ,while 5% of nurses teach patient about importance taking medications, and 95% didn't teach patient about importance taking medications, 10% of nurses provide dietary information for patient, and 90% didn't provide dietary information for patient while, 20% of study nurses provide psychological support for patient, and 80% didn't provide psychological support for patient.

Table (11) Shows that participant distribution in septic room was 40% worker in septic room, and 60% didn't work in septic room, 62.5% wear sterile gloves ,37.5% didn't wear sterile gloves.

100% didn't use PPE (gown ,shoes, safety glasses, hats, mask) ,while 6.25% of study group changing gloves from hepatitis B to hepatitis C patient, but 93.7% didn't changing gloves from hepatitis B to hepatitis C patient , 56.25% of nurses observe patient condition, and 43.7% didn't observe patient condition ,while 12.5% inform patient about transmission and 87.5% didn't inform patient about transmission ,half of study nurses 50% check virology, and 50% didn't check virology.

Chapter Five

Discussion

Recommendations

Conclusion

Discussion , Conclusion & Recommendations

5.1 Discussion:-

The study involve nurses who work in hemodialysis within ages between 20-<40 years old ,majority of them were females ,more than half of them have bachelor and few of them experienced more than ten years in hemodialysis. The study reveal that more than half of nurses attended training course, few of them were attended training course more than three months, and more than half of them were vaccinated against HBV. Majority of nurses were very good regarding predialysis practice while few of them were poor .

Our study is similar to another study conducted in Nepal Asia 2017 , by Dhiraj Narayan Manandhar Pramod Kumar Chhetri, Prakash Poudel,Samir Keshari Baidya,Krishna Kumar Agrawaa the aim of study was to assess knowledge and practice of hemodialysis among dialysis nurse ,and found that few number of nurses were atteneded training course in hemodialysis, and more than half of nurses vaccinated against HBV (27)

The study found that nurses knowledge regarding allowed fluid volume per day and fluid composed was good, but few number of them had a poor knowledge regarding allowed fluid volume and fluid composed, also they are knowledgeable regarding immediate management of fluid overload ,few of them had a good knowledge regarding diet and more than half of them had a poor knowledge regarding diet. Nurses were good regarding intra dialysis practice while few of them were poor..

Majority of studied nurses have a good knowledge about medications should not take intra dialysis ,while more than half of them have a poor knowledge about routine investigation ,and majority of them were knowledgeable about virology check.

Majority of nurses were good regarding post dialysis practice while few of them were poor.

Total number of nurses were knowledgeable regarding intradialysis complication and psychosocial problem of patients in hemodialysis.

Our study is similar study to another study in Alexandria, Egypt conducted by Nagwa Younis Abou El-Enein and Hala M. El Mahdy study was conducted to determine the degree to which standard precautions were applied by nurses in a dialysis unit in terms of hand hygiene and use of personal protective equipment's. It also aimed to assess nurses' knowledge and attitudes toward standard precautions ,the study conclude that none of the nurses washed hands before and after the different activities that required hand washing or used plastic aprons or face protection, all of them wore non sterile gloves before or after the different activities that required wearing of gloves (28)

The current study is different from other study done in Riyadh city, Saudi Arabia 2012 to assess Knowledge and attitude of nurses in Renal Dialysis Units regarding infection control and found that 181 staff of nurses ,majority of them use infection control measurement while they had received training course in infection control.(29) more than half of nurses prepare machine for hemodialysis, Majority of them check blood pressure during dialysis ,more than half of them Communicate with patient , Total number of nurses administer first dose of heparin within first Ten minutes and second dose of heparin at mid dialysis time , Majority of nurses response to Patient parameter and to Machine alarm ,few of them was did Hand washing post dialysis , and more than half of them check blood pressure and patient weight , half of nurses were administer Eprex .

Few of studied nurses were teach patient about importance taking medications ,Provide dietary information for patient and psychological support .

5.2 Conclusion :-

The study concluded that majority of studied nurses had good knowledge regarding hemodialysis, and had poor practice regarding infection control measurement and PPE uses.

5.3 Recommendation :-

The study recommended that:

- The state ministry of health and primary health care unit should adopt training program for new nurses regarding practice.

- Infection control, PPE, supplies ,and facilities must be available in dialysis units by administration of hospitals.

- Administration of hospitals should increase the number of qualified and trained nurses to insure good performance and to be updated.

Chapter Six

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THE REPUBLIC OF SUDAN
ELSHAIKH ABDALLAH ELBADRY UNIVERSITY
Faculty of Health Sciences
Department of Nursing

جمهورية السودان
جامعة الشيخ عبدالله البدري
كلية العلوم الصحية
قسم التمريض

Questionnaire

Assessment of the nurses knowledge regarding hemodialysis in Atbara, Barber, and Aldamer centers 2018.

Chose the correct answer by putting T in true answer and F false answer

1-participiant code:

2-Age :-

(A)20 -29 years. ( )
(B) 30 -39 years. ( )
(C) 40 years and above ( )

3-Gender:-

(A)Male ( )
(B) Female ( )

4-Level of education :-

(A)Diploma. ( )
(B)Bachelor. ( )
(C) Master. ( )
(D) PHD. ( )

5-Years of experience:-

(A)1-3years. ( )
(B)4-6years. ( )
(C)6-10years. ( )
(D) more than 10 years

6- Have you attended any training courses before ( )

- If yeas:-

Period of training is :-

-More than three months ( )
-Less than three months ( )

7- Vaccinated against hepatitis B ( )

8-Allowed fluid volume is:-

(A) Urine out put +500ml/D. ( )
(B) Urine out put+400ml/D. ( )
(C)Urine out put +300ml/D. ( )

9- Fluid composed of:-

(A) water. ( )
(B) juice. ( )
(C)water + juice +coffee +milk ( )
(D) water + tea+ cofee + juice. ( )

10-Immediate management of fluid overload is:-

(A) just dialysis . ( )
(B) dialysis with ultrafiltration. ( )
(C)medically. ( )
(D) medicaly +dialysis + utrafiltration. ( )

11- Regarding dialysis patients diet should be:-

(A) High potassium low sodium ( )
(B) Moderate potassium low fats. ( )
(C) Suitable for hypertensive or diabetic patients low potassium and protien. ( )
(D) As patient demand ( )

12- which of the following medication patient should not taken intradialytic?

(A) Antihypertensive. ( )
(B) Oral hypoglycemic ( )
(C) Insulin. ( )
(D) Calcium Carbonate ( )

13- Check pre dialysis:-

- Virology: yes ( ) No ( )

-Routine investigation:-

(A) Urea and criatinin
(B) Electrolytes and uric acid. ( )
(C) Hemoglobin. ( )

14- Common intradialytic complication is:-

(A) Bleeding. ( )
(B)Nausea/vomiting. ( )
(C) Hypotension. ( )
(D) Hypoglycemia. ( )

15-psychosocial problem that patient complian:-

(A) Depression. ( )
(B) Anxiety. ( )
(C) Uremic psychosis. ( )
(D) Dening disease. ( )

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بسم الله الرحمن الرحيم
الإخلاص - النور

جمهورية السودان
جامعة الشيخ عبدالله البدري
كلية العلوم الصحية
قسم التمريض

Check list

Assessment of practice of nurses regarding hemodialysis in Atbara ,Barber, and Aldamer centers 2018.

Pre dialysis:-	Performed	Not performed
Assess patient weight		
Assess vital signs		
Physical assessment of patient for Pallor.		
Bleeding		
Lower limb edema		
Assess access patency		
Observe Fistula for		
Redness		
Hotness		
Swelling		
Pain		
Presence of Thrill		
CVC		
Hand washing		
Wearing surgical gloves		
Removing plaster with assistance		
Cleaning in one way		
Solution used in dressing Normal saline		
Sprit		
Iodine		
Preparation of machine Don by Nurse		
Preparation of machine Don by Technical engineer		

Intra dialysis	Performed	Not performed
Check blood pressure		
Communication with patient		
Administer first dose of heparine within first 10 minutes		
Administer Second dose of heparine in mid time of dialysis		
Frequently check for Patient parameter		
Frequently check for machine alarm		
Re infusion preparation according to BP Normal saline		
Re infusion preparation according to BP Dextrose		
Re infusion preparation according to BP Dextrose with normal saline		

Post dialysis	**Performed**	**Not performed**
Hand washing		
Check blood pressure		
Check weight		
Administer Eprex		
Teachpatientabout importance taking medications		
Provide dietary information for patient		
Provide psychological support for patient		

Septic practice	performed	Not performed
Sterile gloves		
wearing gown		
Shoes		
Safety glasses		
Hats		
Mask		
Changing gloves from Hepatitis B to Hepatitis C patient		
Observe patient condition		
Inform patient about transmission		
Check virology		

بسم الله الرحمن الرحيم

RIVER NILE STATE

MINISTERY OF HEALTH

Atbara Teaching Hospital

ولايـــة نهر النيل

وزارة الصـــحة والسكان

مســـتشفى عطبره التعليمى

النمرة:١٧/أ/٣

التاريخ:١١ / ٣ /٢٠١٨م

السيد / رئيس قسم التمريض

كلية العلوم الصحية بجامعة الشيخ عبد الله البدري

السلام عليكم ورحمة الله وبركاته

الموضوع/ اعداد بحث تخرج

بالإشارة للموضوع أعلاه وبناءاً على خطابكم بتاريخ ٢٠١٨/٣/٥ لنفس الموضوع نفيدكم بأننا لا نمانع من إجراء بحث التخرج التكميلي لنيل درجة البكلاريوس في علوم التمريض بالمستشفى، مرفق لكم كشف بأسماء الطلاب.

ولكم جزيل الشكر:::: ::::

محمد مبارك عبد اللطيف

المدير الطبي العام