



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**Shendi University**



**Faculty of Graduate Studies and Scientific Research**

**Research about:**

**Evaluation of Patient Satisfaction about  
Nursing Care In Hemodialysis Center In Elmak  
Nimer University Hospital.**

*Thesis Submitted in Requirements of Partial Fulfill for The  
Master's Degree in medical surgical Nursing Science*

**Submitted by:**

*Shahinda Tag Alser Mohammed Ali*

*BSc .Shendi University*

**Supervisor:**

*Dr. Saneia Ahmed Mohammed Salih*

*BSc ,MSc , Ph D*

*Assistance Professor Of Medical Surgical Nursing*

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سورة الرحمن



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى :

الرَّحْمَنُ \* عَلَّمَ الْقُرْآنَ \* خَلَقَ  
الْإِنْسَانَ \* عَلَّمَهُ الْبَيَانَ

صدق الله العظيم

سورة الرحمن - الآية (1-4)

# *Dedication*

*Just to*

*Who have taught me a lot through the life  
Who trained me how I can change to better*

*Dear Father*

*To*

*Who taught me what is the meaning of life  
dried my tear and filled my heart with delight*

*Dear Mother*

*To*

*The deepest feeling who supported me always  
learn me to give even without take*

*dear Brothers and Sisters*

*To*

*Who lead me to the way of success  
my teacher*

*To*

*My friends and Colleagues*



# Acknowledgment

*First thanks for Allah who always with me  
and thanks*

***DR; Sania Ahmed Mohammed***

*For this advice and encouragement*

*I wish to express my appreciation to those who  
helped me during my study*

*Also I express my deep thanks for all workers  
in El- mak Nimer hospital . whose give me  
information which I need.*

*And special thanks Dr; hegazi*



## List of abbreviation

Abbreviation	Term
ESRD	End stage renal disease
CRRT	Continuous renal replacement therapy
ARF	Acute renal failure
GFR	Glomerular filtration rate
BUN	Blood urea nitrogen
AKI	Acute kidney injury
ATN	Acute tubular necrosis
AIN	Interstitial nephritis
NSAIDS	Non steroid anti inflammatory disease

# ملخص البحث

## مقدمة:

مصطلح الفشل الكلوي يدل علي فشل وظيفة الكلي الإخراجية أو الإفرازية.الغسيل الكلوي يستخدم لإزالة السوائل واليورينا والنفايات المنتجة من الجسم عندما لا تستطيع الكلي أن تفعل ذلك .

## تصميم الدراسة :

دراسة وصفية -تستند إلي المستشفى وهي دراسة أجريت في مدينة شندي في مستشفى المك نمر الجامعي في العام 2014م ، غطت الدراسة 100 مريض في مركز غسيل الكلي ،تم جمع البيانات عن طريق الأسئلة المغلقة تم تحليل البيانات التي تم جمعها بواسطة الحاسوب باستخدام برنامج SPSS والتحليل اليدوي .

## الأهداف :

تهدف هذه الدراسة إلي تقييم الرضا للمرضي للعناية التمريضية في مركز غسيل الكلي وتقييم العناية التمريضية للمرضي قبل أثناء وبعد غسيل الكلي.

## النتائج :

أظهرت النتائج أن مجموع العناية التمريضية قبل الغسيل حوالي (6.49) ومجموع العناية أثناء الغسيل (7.5) ،أما العناية التمريضية التي تقدم بعد الغسيل (9.59).كما أظهرت الدراسة أن نسبة الرضا للمرضي الذين شملتهم الدراسة فيما يخص العناية التمريضية بنسبة 62% أما نسبة 38% اظهروا أن الوضع طبيعي.

## التوصيات :

من خلال الدراسة أوصي بتحسين العناية التمريضية وزيادة كفاءتها وتحسين التواصل مع المرضى ومن ثم زيادة ماكينات الغسيل وذلك للوصول إلى الرضا الكامل.



# Abstract

## **Introduction:**

The renal failure term used primarily to denote failure of the excretory function of the kidneys. Dialysis is used to remove fluid and uremic waste products from the body when the kidneys cannot do so.

## **Study design:**

Descriptive , hospital- based study was conducted in Shendi city in Elmak Nimir university hospital in 2014, study covered 100 patient in hemodialysis center , standard closed ended questioner list was been used to data collection , the collected data was analyzed manually and using computer software SPSS program .

## **Objectives:**

This study aim to evaluate patients satisfaction for nursing care in hemodialysis center.

## **Result:**

The result show the total mean of nursing care pre hemodialysis (6.49) , total of nursing care during hemodialysis appear(7.5) , and the nursing care post hemodialysis (9.59) from total mean. The patient satisfaction level was (62%) and other group neutral about (38%) .

## **Recommendations:**

The study recommended to " the nursing care most be improved by good communication and good quality of care to reach patient satisfaction , and by increase number of hemodialysis machine

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# *Chapter One*

*Introduction*

*Rationale*

*Objectives*

# Introduction

## **Definition of renal failure:**

This term is used primarily to denote failure of the excretory function of the kidneys, leading to retention of nitrogenous waste product of metabolism. (Chilvers E,2000)

## **Incidence of disease:**

In December 31, 2010 prevalent population included 383992 patients on hemodialysis and 29,733 on peritoneal dialysis, as well as 179,361 with a functioning kidney transplant; the total treated ESRD population thus rose to 593,086 — growth of 4 percent from 2009, which is the smallest increase in 30 years. The rate of prevalent ESRD cases reached 1,752 per million population, an increase of 1.1 percent from 2009, and also the slowest growth in the last three decades. ([www.ursds.org](http://www.ursds.org)>Annual data report>ADR2012)

## **The incidence of renal failure in Sudan:**

Sudan has witnessed in the last decade expansion of renal services both in the capital and regional hospitals. Yet the deficit in needs remain high and the demand for transplantation services is even higher. The incidence of end-stage renal disease (ESRD) is not known but it is estimated that more than 300 per million populations worldwide are affected due to the high prevalence of communicable diseases and the recognized rise in non- communicable diseases namely diabetes mellitus and hypertension.

Few data in literature are available on the causes of renal diseases in Sudan. Over 1.1 million patients are estimated to have ESRD worldwide, with an addition of 7% new cases every year. In USA, the incidence and prevalence counts are expected to increase from 2000 to 2015 by 44 and 85%, respectively.

There the incidence and prevalence rates per million inhabitants are 32 and 70. An average incidence of ESRD in the Middle East is 93 per million

population. The estimated incidence for new cases in Sudan is about 70-140/million inhabitants/year.(www.sudjms.net)

In February 2003\_2004 the patient from intensive care unit with acute renal failure eighty \_nine patient 57\_64% case were males and mean age was 39\_19 years fulfilled the criteria for the diagnosis of renal failure.33 \_66% patient had renal failure as a complication of volume depletion "malaria and typhoid fever" and 12\_13 "60%" patients recovered their renal function' 6\_7% patients progressed to chronic renal failure , 16\_18% died,  
[www.ncbi.nlm.gov/pubmed](http://www.ncbi.nlm.gov/pubmed).

### **Dialysis:**

Dialysis is used to remove fluid and uremic waste products from the body when the kidneys cannot do so. It may also be used to treat patients with edema that does not respond to treatment, hepatic coma, hyperkalemia, hyperkalemia, hypertension, and uremia.

Methods of therapy include hemodialysis, continuous renal replacement therapy (CRRT), and various forms of peritoneal dialysis. The need for dialysis may be acute or chronic.

Acute dialysis is indicated when there is a high and rising level of serum potassium, fluid overload, or impending pulmonary edema, increasing acidosis, pericarditis, and severe confusion. It may also be used to remove certain medications or other toxins (poisoning or medication overdose) from the blood.

Chronic or maintenance dialysis is indicated in chronic renal failure, known as end-stage renal disease (ESRD), in the following instances: the presence of uremic signs and symptoms affecting all body systems (nausea and vomiting, severe anorexia, increasing lethargy, mental confusion),

Hyperkalemia, fluid overload not responsive to diuretics and fluid restriction, and a general lack of well-being. An urgent indication for dialysis in patients with chronic renal failure is pericardial friction rub.

Patients with no renal function can be maintained by dialysis for years. Although the costs of dialysis are usually reimbursable, limitations on the

patient's ability to work resulting from illness and dialysis usually impose a great financial burden on patients and family (Brunner and suddarth textbook of medical surgical nursing)

## **Hemodialysis;**

In medicine, hemodialysis (also hemodialysis) is a method that is used to achieve 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 renal failure.

Hemodialysis is one of three renal replacement therapies (the other two being renal transplant and peritoneal dialysis). An alternative method for extracorporeal separation of blood components such as plasma or cells is apheresis.

Hemodialysis can be an outpatient or inpatient therapy. Routine hemodialysis is conducted in a dialysis outpatient facility, either a purpose built room in a hospital or a dedicated, stand-alone clinic. Less frequently hemodialysis is done at home. Dialysis treatments in a clinic are initiated and managed by specialized staff made up of nurses and technicians; dialysis treatments at home can be self-initiated and managed or done jointly with the assistance of a trained helper who is usually a family member.

## **Rational**

Practices have three general goals when they interact with patients: to provide quality health care, to make that care accessible, and to treat patients with courtesy and respect. |So, This research done to evaluate the nursing care apply to patient of hemodialysis and assist to improve this care for better .To evaluate the percentage of patient satisfaction about nursing care.

# Objectives

## **General objective:**

To evaluate patient satisfaction about nursing care in hemodialysis center in Elmak Nimer university hospital.

## **Specific objectives:**

- ❖ To assess the patient satisfaction about nursing care received in hemodialysis center.
- ❖ To evaluate the level of satisfaction about nursing care in hemodialysis center.

# *Chapter Two*

## *Literature Review*



# Literature Review

## **Anatomy of the renal:**

The renal and urinary systems include the kidney, ureters, bladder, urethra urine is formed by the kidney and flows through the structure to be eliminated from the body .

## **Kidneys :**

The kidneys are a pair of bean \_shaped ,brownish red structures located retro peritoneal , on the posterior wall of the abdomen from the twelfth thoracic vertebra to the third lumber vertebra in the adult . The average kidney weight approximately 113 to 170g. and is 10\_12cm long,6cm wide, and 2.5cm thick. The right kidney is slightly lower than the left due to the location of the liver.

## **Function of the kidney;**

1. Urine formation .
2. Excretion of waste products .
3. Regulation of acid base balance .
4. Control of water balance .
5. Control of blood pressure .
6. Renal clearance .
7. Regulation of red blood cell production .
8. Synthesis of vitamin to active form .
9. Secretion of prostaglandins.
- 10.Regulates calcium and phosphorus balance .
- 11.Activates growth hormone.
- 12.Regulation of electrolytes. (SmeltzerC.2007 )

## **Definition :**

Renal failure result when the kidneys can not remove the body's metabolic wastes or perform their regulatory function. The substances normally eliminated in the urine accumulate in the body fluids as a result of impaired

renal excretion ,leading to a disruption in endocrine and metabolic function as well as fluid , electrolyte , and acid-base disturbance .

Renal failure is a systemic disease and is a final common pathway of many different kidney and urinary tract disease . Each years ,the number of death from irreversible renal failure increase.(GAVIN C1978)

### **Classification;**

Renal failure can be divided into two categories: acute kidney injury or chronic kidney disease. The type of renal failure is differentiated by the trend in the serum creatinine; other factors that may help differentiate acute kidney injury from chronic kidney disease include anemia and the kidney size on sonography as chronic kidney disease generally leads to anemia and small kidney size.

### **Acute renal failure;**

Acute renal failure 'ARF' is a reversible clinical syndrome where there is a sudden and almost complete loss of kidney function "decreased GFR" over a period of hours to days with failure to excrete nitrogenous waste products and to maintain fluid and electrolyte homeostasis . Although ARF is often thought of as a problem seen only in hospitalized patient , it may occur in the out patient setting as well. ARF manifest as an increase in serum creatinine and BUN urine volume may be normal , or changes may occur possible changes include oliguria "less than 400ml'day " , non oliguria than 400ml-day , or anuria " less than 50ml-day

### **Causes of acute renal failure:**

AKI can be caused by disease, crush injury, contrast agents, some antibiotics, and more .The causes of acute kidney injury are commonly categorized into pre renal, intrinsic, and post renal.

### **Pre renal:**

Pre renal causes of AKI ("pre-renal azotemia") are those that decrease effective blood flow to the kidney. These include systemic causes, such as low

blood volume, low blood pressure, heart failure, liver cirrhosis and local changes to the blood vessels supplying the kidney.

The latter include renal artery stenosis, or the narrowing of the renal artery which supplies the kidney with blood, and renal vein thrombosis, which is the formation of a blood clot in the renal vein that drains blood from the kidney.

Renal ischemia ultimately results in functional disorder, depression of GFR, or both. These causes stem from the inadequate cardiac output and hypovolemic or vascular diseases causing reduced perfusion of both kidneys. Both kidneys need to be affected as one kidney is still more than adequate for normal kidney function.

### **Intrinsic:**

Sources of damage to the kidney itself are dubbed intrinsic. Intrinsic AKI can be due to damage to the glomeruli, renal tubules, or interstitial. Common causes of each are glomerulonephritis, acute tubular necrosis (ATN), and acute interstitial nephritis (AIN), respectively. A cause of intrinsic acute renal failure is tumor lysis syndrome.

### **Post renal :**

Post renal AKI is a consequence of urinary tract obstruction. This may be related to benign prostatic hyperplasia, kidney stones, obstructed urinary catheter, bladder stone, bladder, urethral or renal malignancy. It is useful to perform a bladder scan or a post void residual to rule out urinary retention. In post void residual, a catheter is inserted immediately after urinating to measure fluid still in the bladder. 50-100 ml suggests neurogenic bladder dysfunction. A renal ultrasound will demonstrate hydronephrosis if present. A CT scan of the abdomen will also demonstrate bladder distension or hydronephrosis, however, in case of acute renal failure, the use of IV contrast is contraindicated. On the basic metabolic panel, the ratio of BUN to creatinine may indicate post renal failure.

## **Diagnosis:**

### **Detection:**

The deterioration of renal function may be discovered by a measured decrease in urine output. Often, it is diagnosed on the basis of blood tests for substances normally eliminated by the kidney: urea and creatinine.

Both tests have their disadvantages. For instance, it takes about 24 hours for the creatinine level to rise, even if both kidneys have ceased to function. A number of alternative markers has been proposed (such as NGAL, KIM-1, IL18 and cystatin C), but none are currently established enough to replace creatinine as a marker of renal function. Use of the renal angina index, a composite of risk factors and early signs of injury, has been used to detect fulfillment of renal angina in children.

### **Further testing :**

Once the diagnosis of AKI is made, further testing is often required to determine the underlying cause. These may include urine sediment analysis, renal ultrasound and/or kidney biopsy. Indications for renal biopsy in the setting of AKI include:

1. Unexplained AKI .
2. AKI in the presence of the nephritic syndrome.
3. Systemic disease associated with AKI

### **Clinical manifestations;**

- ❖ Little or no urine when you try to urinate.
- ❖ Swelling, especially in your legs and feet.
- ❖ Not feeling like eating.
- ❖ Nausea and vomiting.
- ❖ Feeling confused, anxious and restless, or sleepy.
- ❖ Pain in the back just below the rib cage. This is called flank pain.
- ❖ Some people may not have any symptoms. And for people who are already quite ill, the problem that's causing the kidney injury may be causing other symptoms.

Acute kidney failure is often difficult to predict or prevent. But you may reduce your risk by taking care of your kidneys.

**Treatment:**

The management of AKI hinges on identification and treatment of the underlying cause. In addition to treatment of the underlying disorder, management of AKI routinely includes the avoidance of substances that are toxic to the kidneys, called nephrotoxins.

These include NSAIDs such as ibuprofen, iodinated contrasts such as those used for CT scans, many antibiotics such as gentamicin, and a range of other substances.

Monitoring of renal function, by serial serum creatinine measurements and monitoring of urine output, is routinely performed. In the hospital, insertion of a urinary catheter helps monitor urine output and relieves possible bladder outlet obstruction, such as with an enlarged prostate.

**Specific therapies:**

In pre renal AKI without fluid overload, administration of intravenous fluids is typically the first step to improve renal function. Volume status may be monitored with the use of a central to avoid over- or under-replacement of fluid. Should low blood pressure prove a persistent problem in the fluid-replete patient, inotropes such as nor epinephrine and dobutamine may be given to improve cardiac output and hence renal perfusion. While a useful presser, there is no evidence to suggest that dopamine is of any specific benefit, and may be harmful.

The myriad causes of intrinsic AKI require specific therapies. For example, intrinsic AKI due to Wegener's granulomatosis may respond to steroid medication. Toxin-induced pre renal AKI often responds to discontinuation of the offending agent, such as amino glycoside, penicillin, NSAIDs, or paracetamol.

If the cause is obstruction of the urinary tract, relief of the obstruction (with a nephrostomy or urinary catheter) may be necessary.

## **Diuretic agents:**

The use of diuretics such as furosemide, is widespread and sometimes convenient in ameliorating fluid overload. It is not associated with higher mortality (risk of death), nor with any reduced mortality or length of intensive care unit or hospital stay(Wikipedia, org/wiki )

## **Chronic kidney disease {End- Stage Renal Disease}**

Chronic kidney disease, also called chronic kidney failure, describes the gradual loss of kidney function. Your kidneys filter wastes and excess fluids from your blood, which are then excreted in your urine. When chronic kidney disease reaches an advanced stage, dangerous levels of fluid, electrolytes and wastes can build up in your body.

### **Causes;**

Diseases and conditions that commonly cause chronic kidney disease include:

- ❖ Type 1 or type 2 diabetes .
- ❖ High blood pressure.
- ❖ Glomerulonephritis an inflammation of the kidney's filtering units (glomeruli)
- ❖ Interstitial nephritis, an inflammation of the kidney's tubules and surrounding structures .
- ❖ Polycystic kidney disease.
- ❖ Prolonged obstruction of the urinary tract, from conditions such as enlarged prostate, kidney stones and some cancers .
- ❖ Vesicoureteral reflux, a condition that causes urine to back up into your kidneys .
- ❖ Recurrent kidney infection, also called pyelonephritis.

The incidence of ESRD has increased by almost 8% per year for the past 5 years.

Environmental and occupational agent that have been implicated in chronic renal failure include lead , cadmium , mercury , and chromium

## **Risk factor of ESRD:**

Factors that may increase your risk of chronic kidney disease include:

- ❖ Diabetes & .
- ❖ High blood pressure &
- ❖ Heart disease &
- ❖ Smoking &
- ❖ Obesity &
- ❖ High cholesterol &
- ❖ & Family history of kidney disease

Age 65 or older &

## **The signs and symptoms of ESRD :**

Cardiovascular manifestation; hypertension due to sodium and water retention , heart failure and pulmonary edema due to fluid over load . pericarditis , engorged neck veins , hyperkalemia ; cardiovascular disease is the pre dominant cause of death in patient with ESRD. In patient receiving chronic hemodialysis, approximately 45% of overall mortality is attributable to cardiac disease , and about 20% of these cardiac death are due to acute myocardial infarction

Dermatologic manifestation ; severe pruritus "Itching is common vomiting, and hiccups. The patient breath may have the odor of urine this may be associated with inadequate dialysis.

- ❖ Neurologic manifestation; including altered level of consciousness inability to concentrate, muscle twitching , agitation , confusion.
  - ❖ Pulmonary ; thick, tenacious sputum, shortness of breath , tachypnea, pleurisy pain.
  - ❖ Hematologic; Anemia, thrombocytopenia.
  - ❖ Musculoskeletal; muscle cramps, renal osteodystrophy bone pain, foot drop.
- Signs and symptoms of kidney disease are often nonspecific, meaning they can also be caused by other illnesses. And because your kidneys are highly

adaptable and able to compensate for lost function, signs and symptoms may not appear until irreversible damage has occurred.

### **Management of chronic renal failure:**

treatment depends on your symptoms but may include:

Extra calcium and vitamin D (always talk to your doctor before taking supplements)

Medicines called phosphate binders, to help prevent phosphorous levels from becoming too high

Treatment for anemia, such as extra iron in the diet, iron pills or shots, shots of a medicine called erythropoietin, and blood transfusions.

Medicines to control your blood pressure You may need to follow a special diet for chronic kidney disease.

### **These changes may include:**

Eat a low-protein diet.

Get enough calories if you are losing weight.

Limit fluids.

Limit salt, potassium, phosphorous, and other electrolytes.

kidney transplant is surgery to place a healthy kidney into a person with kidney failure.

Dialysis; dose some of the kidneys when they stop working well.  
([www.nlm.nih.gov/medlineplus/article](http://www.nlm.nih.gov/medlineplus/article))

### **Complication of chronic renal failure :**

Chronic kidney disease can affect almost every part of your body.

Potential complications may include:

- ❖ Fluid retention, which could lead to swelling in your arms and legs, high blood pressure, or fluid in your lungs (pulmonary edema).
- ❖ A sudden rise in potassium levels in your blood (hyperkalemia), which could impair your heart's ability to function and may be life-threatening
- ❖ Heart and blood vessel disease (cardiovascular disease).
- ❖ Weak bones and an increased risk of bone fractures.



- ❖ Anemia .
- ❖ Decreased sex drive or impotence .
- ❖ Damage to your central nervous system, which can cause difficulty concentrating, personality changes or seizures .
- ❖ Decreased immune response, which makes you more vulnerable to infection .
- ❖ Pericarditis, an inflammation of the sac-like membrane that envelops your heart (pericardium) .
- ❖ Pregnancy complications that carry risks for the mother and the developing fetus .
- ❖ Irreversible damage to your kidneys (end-stage kidney disease),
- ❖ eventually requiring either dialysis or kidney transplant for survival.

### **Prevention;**

To reduce your risk of chronic kidney disease;

#### **Follow instructions on over-the-counter medications.**

When using nonprescription pain relievers, such as aspirin, ibuprofen (Advil, Motrin IB, others) and acetaminophen (Tylenol, others), follow the instructions on the package. Taking too many pain relievers could lead to kidney damage and generally should be avoided if you have kidney disease. Ask your doctor whether these drugs are safe for you.

#### **Maintain a healthy weight.**

If you're at a healthy weight, work to maintain it by being physically active most days of the week. If you need to lose weight, talk with your doctor about strategies for healthy weight loss. Often this involves increasing daily physical activity and reducing calories.

#### **Don't smoke:**

If you're a smoker, talk to your doctor about strategies for quitting smoking. Support groups, counseling and medications can all help you to stop.

## **Manage your medical conditions with your doctor's help.**

If you have diseases or conditions that increase your risk of kidney disease, work with your doctor to control them. Ask your doctor about tests to look for signs of kidney damage

### **Dialysis;**

Dialysis is used to remove fluid and uremic waste products from the body when the kidneys cannot do so. It may also be used to treat patients with edema that does not respond to treatment, hepatic coma, hyperkalemia, hypertension, and uremia. Methods of therapy include hemodialysis, continuous renal replacement therapy (CRRT; discussed later), and various forms of peritoneal dialysis. The need for dialysis may be acute or chronic.

Acute dialysis is indicated when there is a high and rising level of serum potassium, fluid overload, or impending pulmonary edema, increasing acidosis, pericarditis, and severe confusion. It may also be used to remove certain medications or other toxins (poisoning or medication overdose) from the blood. Chronic or maintenance dialysis is indicated in chronic renal failure, known as end-stage renal disease (ESRD), in the following instances: the presence of uremic signs and symptoms affecting all body systems (nausea and vomiting, severe anorexia, increasing lethargy, mental confusion), hyperkalemia, fluid overload not responsive to diuretics and fluid restriction, and a general lack of well-being. An urgent indication for dialysis in patients with chronic renal failure is pericardial friction rub.

Patients with no renal function can be maintained by dialysis for years. Although the costs of dialysis are usually reimbursable, limitations on the patient's ability to work resulting from illness and dialysis usually impose a great financial burden on patients and family.

### **Hemodialysis:**

In medicine, hemodialysis (also hemodialysis) is a method that is used to achieve 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 renal failure. Hemodialysis is one of three renal replacement therapies (the other two being renal transplant and peritoneal dialysis). An alternative method for extracorporeal separation of blood components such as plasma or cells is apheresis.

Hemodialysis can be an outpatient or inpatient therapy. Routine hemodialysis is conducted in a dialysis outpatient facility, either a purpose built room in a hospital or a dedicated, stand-alone clinic. Less frequently hemodialysis is done at home. Dialysis treatments in a clinic are initiated and managed by specialized staff made up of nurses and technicians; dialysis treatments at home can be self-initiated and managed or done jointly with the assistance of a trained helper who is usually a family member.

### **Types of hemodialysis;**

There are three types of hemodialysis: conventional hemodialysis, daily hemodialysis, and nocturnal hemodialysis.

### **Conventional hemodialysis;**

Chronic hemodialysis is usually done three times per week, for about 3-4 hours for each treatment, during which the patient's blood is drawn out through a tube at a rate of 200-400 mL/min. The tube is connected to a 15, 16, or 17 gauge needle inserted in the dialysis fistula or graft, or connected to one port of a dialysis catheter. The blood is then pumped through the dialyzer, and then the processed blood is pumped back into the patient's bloodstream through another tube (connected to a second needle or port).

During the procedure, the patient's blood pressure is closely monitored, and if it becomes low, or the patient develops any other signs of low blood volume such as nausea, the dialysis attendant can administer extra fluid through the machine. During the treatment, the patient's entire blood volume (about 5000 cc) circulates through the machine every 15 minutes.

During this process, the dialysis patient is exposed to a week's worth of water for the average person.

## **Daily hemodialysis:**

Daily hemodialysis is typically used by those patients who do their own dialysis at home. It is less stressful (more gentle) but does require more frequent access. This is simple with catheters, but more problematic with fistulas or grafts. The "buttonhole technique" can be used for fistulas requiring frequent access. Daily hemodialysis is usually done for 2 hours six days a week.

## **Nocturnal hemodialysis:**

The procedure of nocturnal hemodialysis is similar to conventional hemodialysis except it is performed three to six nights a week and between six and ten hours per session while the patient sleeps.

## **There are different types of access for hemodialysis:**

### **Fistula:**

A fistula is created by connecting one of the arteries to one of the veins in your lower arm. A fistula allows repeated access for each dialysis session. It may take several months for the fistula to form. A fistula may not clot as easily as other dialysis access methods. A fistula is the most effective dialysis access and the most durable. Complications include infection at the site of access and clot formation (thrombosis).

### **Graft:**

A vascular access that uses a synthetic tube implanted under the skin in your arm (graft) may be used if you have very small veins.

The tube becomes an artificial vein that can be used repeatedly for needle placement and blood access during hemodialysis.

A graft does not need to develop as a fistula does, so a graft can sometimes be used as soon as 1 week after placement. Compared with fistulas, grafts tend to have more problems with clotting or infection and need to be replaced sooner. A polytetrafluoroethylene (PTFE or Gore-Tex) graft is the most common type used for hemodialysis.

## **Venous catheter:**

A tube, or catheter, may be used temporarily if you have not had time to get a permanent access. The catheter is usually placed in a vein in the neck, chest, or groin. Because it can clog and become infected, this type of catheter is not routinely used for permanent access. But if you need to start hemodialysis right away, a catheter may be used until your permanent access is ready.

Hemodialysis for acute kidney injury may be done daily until kidney function returns.

Hemodialysis is often started after symptoms or complications of kidney failure develop. Symptoms or complications may include:

Signs of uremic syndrome, such as nausea, vomiting, loss of appetite, and fatigue.

High levels of potassium in the blood (hyperkalemia).

Signs of the kidneys' inability to rid the body of daily excess fluid intake, such as swelling.

High levels of acid in the blood (acidosis).

Inflammation of the sac that surrounds the heart (pericarditis).

Hemodialysis is sometimes used when acute kidney injury develops. Dialysis is always used with extra caution in people who have acute kidney injury, because dialysis can sometimes cause low blood pressure, irregular heart rhythms (arrhythmias), and other problems that can make acute kidney injury worse.

Hemodialysis may improve your quality of life and increase your life expectancy. But hemodialysis provides only about 10% of normal kidney function. It does not reverse chronic kidney disease or kidney failure.

Dialysis has not been shown to reverse or shorten the course of acute kidney injury. But it may be used when fluid and electrolyte problems are causing severe symptoms or other problems. Some people who develop acute kidney injury stay dependent on hemodialysis and will go on to develop kidney failure.

## **Complication of hemodialysis:**

Most complications that occur during dialysis can be prevented or easily managed if you are monitored carefully during each dialysis session. Possible complications may include:

- ❖ Low blood pressure (hypotension). This is the most common complication of hemodialysis. It is seen more often in women and in people older than 60.
- ❖ Muscle cramps If cramps occur, they usually happen in the last half of a dialysis session.
- ❖ Irregular heartbeat (arrhythmia).
- ❖ Nausea, vomiting, headache, or confusion (dialysis disequilibrium).
- ❖ Infection, especially if a central venous access catheter is used for hemodialysis.
- ❖ Blood clot (thrombus) formation in the venous access catheter.
- ❖ Technical complications, such as trapped air (embolus) in the dialysis tube

## **Long-term complications of dialysis may include:**

- ❖ Inadequate filtering of waste products (hemodialysis inadequacy).
- ❖ Blood clot (thrombus) formation in the dialysis graft or fistula.
- ❖ Cardiovascular disease(heart disease, blood vessel disease,

Choosing between treatment with hemodialysis or peritoneal dialysis is based on your lifestyle, other medical conditions, and body size and shape. Talk to your doctor about which type would be best for you.

If you have severe chronic kidney disease and you have not yet developed kidney failure, talk with your doctor about which type of dialysis might work best for you.

People who have widely fluctuating blood pressure when they receive hemodialysis (hemodynamic instability) may not be able to continue with treatment. They may be switched to peritoneal dialysis.

Many people first receive dialysis while waiting for a kidney transplant. Some people may have to receive dialysis again if the kidney transplant fails.

## **Nursing care for hemodialysis patient;**

### **Pre dialysis care**

- ❖ assess vital sign as a baseline information to help evaluate the effects of hemodialysis
- ❖ record patient's weight.
- ❖ assess vascular access site for palpable pulsation or vibration and for signs of inflammation. Absence of pulsation/vibration should be reported to doctors and dialysis can no longer be done in the assessed access site.

### **During hemodialysis:**

- ❖ Place patient in supine /trendelenburg's position as necessary.
- ❖ Avoid contamination of access site use aseptic technique .
- ❖ Monitor alarms of the machine .
- ❖ Monitor vital sings .
- ❖ Administer IV solution ( as indicated)

no procedure should be done on the extremities with vascular access site to avoid damage of blood vessels leading to the failure of the arteriovenous fistula.

### **Post dialysis care**

- ❖ assess and document vital signs, weight and vascular access site condition.
- ❖ rapid fluid and solute removal during dialysis may lead to hypotension, cardiopulmonary changes and weight loss .
- ❖ assess client general condition for dialysis disequilibrium .
- ❖ rapid changes in BUN (Blood Urea Nitrogen), pH and electrolyte level during dialysis may lead to cerebral edema and increase intracranial pressure
- ❖ assess for bleeding at the access site.
- ❖ heparinization during dialysis increase the risk of bleeding.

provide psychological support; listen actively, address concerns and explain about the dialysis.([www.nursing.help.come](http://www.nursing.help.come))

**Self care:**

Client's must comply with dietary and fluid intake modification and take prescribed medications as ordered.

They must monitor and record weight and blood pressure daily and care for the venous access or catheter as ordered.

Non compliance with the regimen lead to complications. The client or family must perform dialysis at home or keep scheduled dialysis appointments.(Black.M2006)



# Chapter Three

## Material and Methods

# Methodology

## Study design:

This is descriptive study hospital base research, done in period extended from October to November 2014, to determine Patient satisfaction for nursing care in hemodialysis center.

## Study area:

This study done in Sudan in Shendi town, it is one of the major towns in River Nile state and it includes several general centers for different services and purpose, also there in Shendi University with various faculties.

Shendi has three major hospitals, military hospital, Shendi teaching hospital and Elmak Nemir university hospital

## Study setting:-

Elmak nemir university hospital has been established in July 2002, it is biggest hospital which have different department and provide good health services for population in Shendi area, there is medicine department, surgery, pediatric, obstetrical, ENT, ICU, ophthalmic, dental unit, minor and major theater, CCU, oncology and dialysis unit, there is also blood bank and pharmacy and laboratory.

## Study population:

The study includes the entire patients in hemodialysis center in period of the study.

## Sampling:

The sample is simple randomly.

## Sample size:

The sample size is about 100 patients from total number of patients.

## Data collection tool:

Data will be collected by questionnaire include 18 questions in 4 sections .

**Data collection technique:**

The questionnaire filling by responder has been used to collect data explain by Arabic language ,every patient need to 3-5minuts to answer all the questions.

**Data analysis and presentation:**

The data has been analyzed manually by using simple statistic method and by computer software by SPSS program, the result presented in form of tables .

**Ethical consideration:**

The study will be approved by research ethic committee of research.

# *Chapter Four*

## *Results*

## Results

**Table (1): Distribution of study group according to their gender:**

Gender	Frequency	Percent
Male	56	56 %
Female	44	44 %
Total	100	100 %

The above table showed that more than half (56 %) of study group were male, and less than half (44 %) were female.

**Table (2): Distribution of study group according to their age:**

Age	Frequency	Percent
20-30 year	22	22 %
More 30-40 year	30	30 %
More 40-50 year	13	13 %
More 50-60 year	21	21 %
More than 60 year	14	14 %
Total	100	100 %

The above table showed that nearly one third (30 %) between 30 -40 years and one fifth (22%) Between 20-30 years.

**Table (3):Distribution of study group according to their education level:**

<b>Education level</b>	<b>Frequency</b>	<b>Percent</b>
Illiterate	16	16 %
Primary	33	33 %
Secondary	25	25 %
University	26	26 %
Total	100	100 %

The above table showed that more than third (33%) of study group have a primary education.

**Table (4):Frequency and percentage of dialysis per week:**

<b>dialysis per week</b>	<b>Frequency</b>	<b>Percent</b>
2 per week	95	95 %
3 per week	5	5 %
Total	100	100 %

The above table showed that the majority (95%) of study group their attending twice per week.

**Table (5): Frequency and percentage of duration of hemodialysis per years**

<b>duration per years</b>	<b>Frequency</b>	<b>Percent</b>
less than 1 year	23	23 %
1-2 year	23	23 %
2-3 year	13	13 %
3-4 year	25	25 %
More than 4 year	16	16 %
Total	100	100 %

The above table showed that quarter of study group(25%)on hemodialysis from 3-4 years.

**Table (6): Mean of pre, during, and after nursing care for hemodialysis:**

<b>Descriptive Statistics</b>	<b>Mean of items</b>	<b>Total mean of nursing care</b>
<b>The nursing care pre hemodialysis</b>		
The nurse listen to the complaining carefully	1.83	1.62
The nurse check the vital signs and weight	1.71	
For the nurses welcome you to the renal unit	1.51	
The nurse ask about condition frequently	1.44	
<b>Total mean of nursing care items</b>	<b>6.49</b>	
<b>The nursing care during hemodialysis</b>		
The nurse maintains patient privacy	2.67	
The nurse response during technical hitch or alarm failure	1.92	

The nurse respond for calling immediately	1.84	1.88
Administration of medication by nurse during dialysis	1.07	
<b>Total mean of nursing care items</b>	<b>7.5</b>	
<b>The nursing care post hemodialysis</b>		
Are there enough dialysis machines	3.65	2.40
The nurse provides the patient with health education	2.03	
Do nurse give advice in view of post dialysis result	2.01	
The nurse give the patient chance for asking questions	1.90	
<b>Total mean of nursing care items</b>	<b>9.59</b>	

The above table showed that most dissatisfaction item in pre hemodialysis care appear at mean 1.83 (The nurse listen to the complaining carefully),(The nurse maintains patient privacy) at mean 2.67 in care during hemodialysis, and (not enough dialysis machines) at 3.65 in post hemodialysis care. On the other hand the most dissatisfaction nursing care was appear at mean 2.40 (post hemodialysis)



**Table (7): Frequency and percentage of patient satisfaction level:**

<b>Level of satisfaction</b>	<b>Level score</b>	<b>Frequency</b>	<b>Percent</b>
Very satisfy	1-12	Zero	Zero
Satisfy	13-24	62	62 %
Neutral	25-36	38	38 %
Dissatisfy	37--48	Zero	Zero
Very dissatisfy	49--60	Zero	Zero
<b>Total</b>	60	100	100 %

The above table showed that the patient satisfaction level appear between ( Satisfy and Neutral percentage 62 %, 38 % respectively.

# *Chapter Five*

*Discussion*

*Conclusion*

*Recommendations*

## Discussion

In medicine ; hemodialysis is a method that is used to achieve 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 renal failure .

The study reveals that more than half (58%) of study group were male and (40%) were female this might due to male high risk factor(smoking) ,the study showed that one third(30%) of patient age between (30\_40 years) and (14%) aged more than 60 years, in previous study according to( [htajasn . asn journals org/cig/content /obstruct. 1,2007\\_5,2008](http://htajasn.asn.org/cig/content/obstruct.1,2007_5,2008); during two years of follow-up 233,803 patient were hospitalized, aged > 67 years develop end-stage renal disease ,do not agree with this research .The most patient where varied in their educational level 16% of them have university education and 26% were illiterate this due to deficit knowledge about disease or late diagnosis.

According to session of hemodialysis per week found about (95%) of study group their attending twice per week and ( 25%) of them duration hemodialysis have (3-4 years) and (16%) have more than 4 years , "In previous study according to JASN ,Institution Sudan ,American 27/2008 ;10,044 patients ninety five percent . who were beginning hemodialysis treatment , twenty percent risk of death".

Regarding to nursing care ; the study showed the pre hemodialysis care such as , welcome to the renal unit ,check vital sings and weight , listen to the complaining carefully , and ask about condition frequently showed 1.62 from total mean 6.49. Also the nursing care during hemodialysis such as; maintain patient privacy , nursing response during technical alarm failure , response for calling immediately, give medication if occur any complication during dialysis in this, patient satisfaction by mean 1.88 from total mean 7.5 .

The nursing care post hemodialysis such as; provides patient with health education , give the patient chance for asking question and advice in view of post hemodialysis result ,and regard number of hemodialysis machines the study showed patient satisfy by mean 2.40 from total mean 9.59.

The study resolved that the level of satisfaction for nursing care in hemodialysis center more than sixty percent (62%) , about (38%) were natural.

# Recommendations

## **Based on conclusion it was recommended that:**

1. Nursing care should be improved to high level and standard of care to reach patients satisfaction.
2. Patients have be satisfaction by good communication and good quality of care.

## **Conclusion**

Based on discussion and result it was concluded that; more than Sixty (62%) of patients satisfied for nursing care provided to them and more than third (38%) with neutral level of satisfaction.

*Annex*

*References*

*Appendix*

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**Shendi University**

**Faculty of graduate studies and scientific research**

**Questionnaire about patient satisfaction for nursing care in hemodialysis  
center in Elmak Nimer hospital**

**Demographic data :**

**1-patient name:**.....

**2-Gender :** male( ) female( )

**3-Age:** 20-30( ) 30-40( )

40-50( ) 50-60( ) 60 or more( )

**4-Education status :** Illiterate( ) primary( )

Secondary ( ) university ( ) postgraduate( )

**5-Ferquency of dialysis per weeks:**

1 time per week ( ) 2 time per week( ) 3 time per week( )

**6-Duration of hemodialysis per years:**

less than 1 year( ) 1-2)years( ) (2-3)years( ) 3-4)years( )

more than 4 years ( )

**nursing care pre hemodialysis:**

1. If satisfaction for the nurses welcome you to the renal unit:

A: very satisfaction( ) B: satisfaction ( ) C: neutral( )

D:dis satisfaction ( ) E: very dissatisfaction ( )

**2. The nurse ask about condition frequently :**

a. very satisfaction ( ) b. satisfaction ( ) c. neutral ( )

d. dissatisfaction ( ) e : very dissatisfaction ( )

**3. The nurse listen to the complaining carefully :**

a: very satisfaction ( ) b: satisfaction ( ) c: neutral ( )

d: dissatisfaction ( ) e: very dissatisfaction ( )

**4. The nurse check vital sings and weight :**

a. very satisfaction ( ) b. satisfaction ( ) c. neutral ( )

d. dissatisfaction ( ) E: very dissatisfaction ( )

**The nursing care during hemodialysis :**

**1.The nurse maintains patient privacy :**

- a. very satisfaction(    )    b. satisfaction (    )    c. neutral (    )  
d. dissatisfaction (    )    e. very dissatisfaction (    )

**2. The nurse respond for calling immediately :**

- a. very satisfaction (    )    b. satisfaction (    )    c. neutral (    )  
D: dis satisfaction (    )    E: very dissatisfaction (    )

**3.The nurse response during technical hitch or alarm failure :**

- a. very satisfaction (    )    b. satisfaction (    )    c. neutral (    )  
d: dissatisfaction (    )    e: very dissatisfaction (    )

**4.Administration of medication by nurse during dialysis:**

- A. yes (    )    B. No (    )

**The nursing care post hemodialysis:**

**1. Do nurse give advice in view of post dialysis result:**

- a. very satisfaction (    )    b. satisfaction(    )    c. neutral (    )  
d. dissatisfaction (    )    E. very dissatisfaction (    )

**2.The nurse give the patient chance for asking questions:**

- a. very satisfaction (    )    b. satisfaction (    )    c. neutral (    )  
d. dissatisfaction (    )    e. very dissatisfaction (    )

**3.The nurse provides the patient with health education :**

- a. very satisfaction (    )    b. satisfaction (    )    c. neutral (    )  
d. dissatisfaction (    )    e. very dissatisfaction (    )

**4. Are there enough dialysis machines:**

- a .very satisfaction (    )    b. satisfaction (    )    c: neutral (    )  
d. dissatisfaction (    )    e. very dissatisfaction (    )

**5.The number of nursing staff :**

- a. very satisfaction(    )    b. satisfaction (    )    C: neutral(    )  
d. dissatisfaction (    )    e. very dissatisfaction (    )