IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Advanced Treatment Options In Renal Disorders

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ABSTRACT:

A complex condition known as chronic kidney disease (CKD) affects 13% of people worldwide. Renal failure and the progression to end-stage kidney disease as well as cardiovascular disease can be brought on over time by renal disorder. The speed at which the disease progresses and the risk of cardiovascular morbidities may both be accelerated by CKD complications. Early stages of CKD are asymptomatic, and symptoms only appear later on when the disease develops problems like decliningkidney function and the presence of other concomitant conditions. Patients can only be treated with dialysis or a kidney transplant in advanced stages of the disease when kidney function has been severely compromised.

The incidence of CKD is predicted to increase due to the disease's comorbidities, which arealso increasing in prevalence along with the senior population.

The present difficulties and unmet patient needs in CKD are discussed in this review.

Keywords: Renal Disorder, Chronic Kidney Disease, Kidney, Nephron, Urinary System, Dialysis, Kidney Transplant.

Introduction :

Renal System :

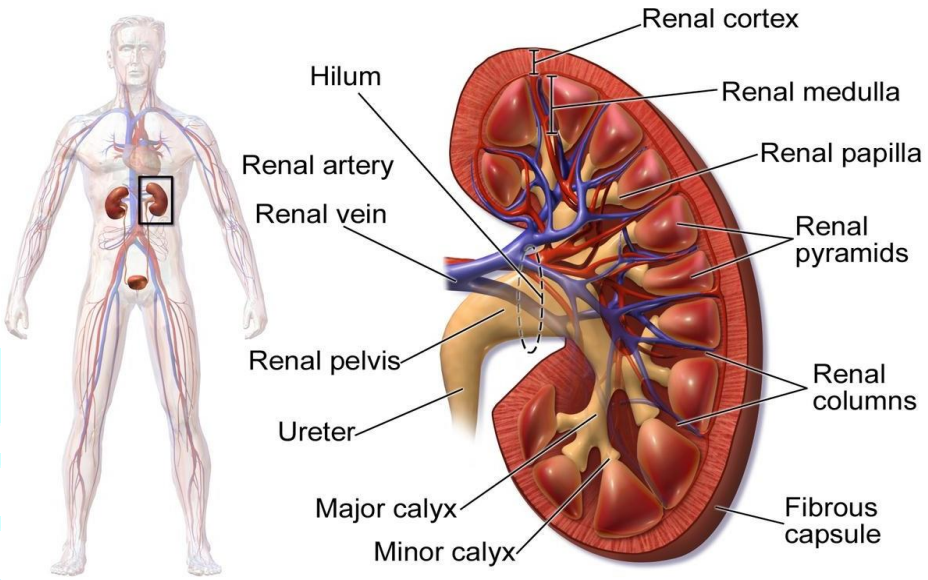
Humans have a renal system, which consists of the kidneys, which create urine, as well as the ureters, bladder, and urethra, which allow urine to pass through, be stored, and then be expelled.

The human excretory, or urinary, system shares many similarities with other mammalian species, but it also has its own distinct anatomical and functional traits. The names excretory and urinary underline the system's capability for elimination. However, the kidneys actively retain some compounds that are just as vital to existence as others that are removed by secreting them into the body.

The kidneys are paired, bean-shaped organs that are reddish brown and concave on one of their long sides and convex on the other. On either side of the vertebral column, Just below the waist and between the peritoneum and on the posterior abdominal wall.

kidneys are located between levels of 12th thoracic vertebra and 3rd vertebra of lumbar. Sizes -

- Length=11cm
- Width=6cm
- Thickness=3cm
- Weight=150gm



Kidney Anatomy

Renal Function:

Formation of urine=In which it regulates the following points :

•Total body water

•Regulate electrolyte

•Regulate acid base balance

•Regulate excretion of waste products

Regulation of blood PH=

For maintaining the blood PH, the proximal convoluted tubules secrete H+ ion into urine.

Regulation of blood volume=In these regulation of blood volume is eliminating water in urine.

And there is direct relationship between blood volume and blood pressure.(As the blood volume increases;the blood pressure also increases)

Regulation of BP=This regulation is done by secreting the renin (enzyme).Increase renin: It cause increase BP.

Production of hormone=It produce two types of hormones: A)CalcitriolB)Erythropoietin

Renal Physiology :

It contain three basic processes, for producing urine, nephron, and collecting duct.

1) **Glomerular Filtration** : The first step in the generation of urine is glomerular filtration. Hydrostatic pressure passively forces fluid and solute across a membrane without the need for energy. The glomerular capillaries' fenestrated endothelium, which allows blood components other than cells to pass through, the basement membrane, a negatively charged physical barrier that prevents proteins from permeating, and the foot processes of the glomerular capsule's podocytes, which produce more selective filtration, make up the filtration membrane. How much water and solutes pass through the filtration membrane is determined by the outward and The colloid osmotic pressure in the capsular space, which is another potential filtration force, is zero because the capsular space typically lacks proteins. The filtration force from the hydrostatic pressure in the glomerular capillaries is then negated by the colloid osmotic pressure in the capsular space, resulting in a net filtration pressure that significantly affects the glomerular filtration rate. inward force of the capillaries. The primary filtration force, with a pressure of 55mmHg, comes from the glomerular capillaries' hydrostatic pressure.

GFR, or the volume of fluid filtered in a minute, is determined by the net filtration pressure, the total amount of surface area that is accessible for filtration, and the permeability of the filtration membrane. The GFR ranges from120 to 125 ml/min. To maintain the GFR, it is both intrinsically and extrinsically regulated.

2) **Tubular Reabsorption** : Each of the four tubular segments' individual absorptive qualities isdistinct.The proximal convoluted tubule is the first (PCT). The PCT cells have the greatest capacity for absorption. In a

typical situation, the PCT reabsorbs all of the glucose, all of the amino acids, 65% of the Na, and all of the water. A basolateral Na-K pump allows the PCT to reabsorb sodium ions by primary active transport. Throughsecondary active transport with Na and passive paracellular diffusion driven by an electrochemical gradient, it reabsorbs vitamins, amino acids, and glucose. Osmosis, which is powered by solute reabsorption, is used by the PCT to reabsorb water. Additionally, passive diffusion that is fueled by the concentration gradient produced by the reabsorption of water is used to reabsorb lipid- soluble solutes. The PCT also reabsorbs urea by passive paracellular diffusion.

The filtrates that are not reabsorbed continue on to the nephron loop from the PCT. The nephron loop separates into an ascending and a descending limb functionally. Osmosis is used by the descending limb to reabsorb water. As a result of the prevalence of aquaporins, this mechanism is feasible. In this location, soluble substances are not reabsorbed. Sodium, potassium, and chlorides are reabsorbed collectively by a symporter in the thick segment of the ascending limb, whereas Na travels passively along its concentration gradient in the thin portion of the ascending limb. By generating an ionic gradient, Na-K ATPase keeps this symporter active in the basolateral membrane. The calcium and magnesium ions are also reabsorbable in the ascending limb.The distal convoluted tubule is the following tubular segment for reabsorption (DCT). Through Na-Cl symporter and channels, there is main active sodium transport at the basolateral membrane and secondary active transport at the apical membrane. At the distal end, aldosterone controls this process. The parathyroid hormone regulates calcium reabsorption via passive uptake as well. The apical Na and K channels as well as the Na-K ATPase are synthesised and retained by aldosterone-targeted cells in the distal portion of the DCT.The collecting tubule immediately following the DCT is where the last stage of reabsorption takes place. Here, reabsorptions include passive calcium uptake through PTH-modulated channels in the apical membrane, primary and secondary active sodium transport at the basolateral membrane, secondary active sodium transport at the apical membrane via Na-Cl symporter and channelswith aldosterone regulation, and primary and secondary active transport in the basolateral membrane.

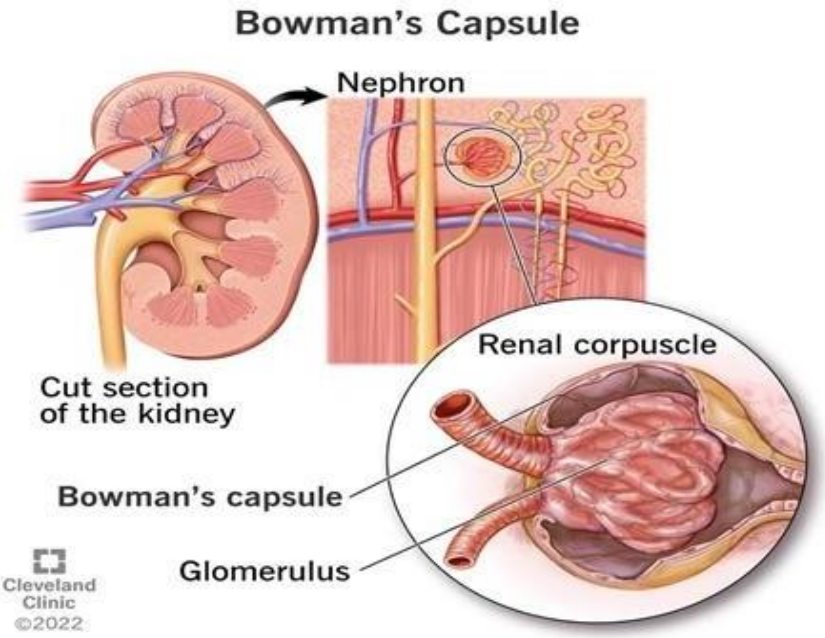
3) **Tubular Secretion :** The purpose of tubular secretion is to get rid of things like medicines and Metabolites that attach to plasma proteins. Additionally, urea and uric acids that were passively reabsorbed are removed through tubular secretion. One of the functions of tubular secretion is the elimination of extrapotassium through aldosterone hormone control at the collecting duct and distal DCT.When the blood pH falls outside of the normal range, hydrogen ions are eliminated. Then, as bicarbonate acid is expelled, chloride ions are reabsorption when the blood pH rises above the usual level. Creatinine, ammonia, as well as numerous other organic acids and bases, are secreted.

Nephron:

The kidney's main functioning unit is the nephron. There are roughly 1 million nephrons per kidney.

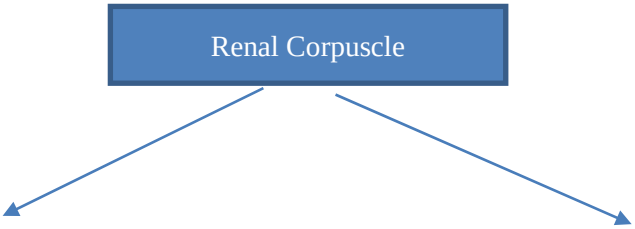
The glomerulus, a type of filtering system found in each nephron, and the tubule, through which the filtered liquid travels, are both present. Each glomerulus is made up of a network of capillaries that are encircled by a membrane known as the Bowman's capsule. The renal artery's afferent arteriole transports blood to the glomerulus, where it splits to create a circulatory network. The capillaries reunite at the glomerulus' distal

end to form the efferent arteriole, which is where blood exits the glomerulus.The circulating bloodpasses through the kidneys in huge quantities. The kidneys receive 1200 ml of blood each minute, or about25% of the cardiac output. More than 1000 litres of circulating blood are converted into one litre of urine by the kidneys. The process of making urine starts in the glomerular capillaries, where dissolved materials are then transported by Bowman's capsule pressure and the blood pressure in the big afferent arteriole into the proximal tubule.



It is the functional unit of kidney. Each nephron containing two parts :

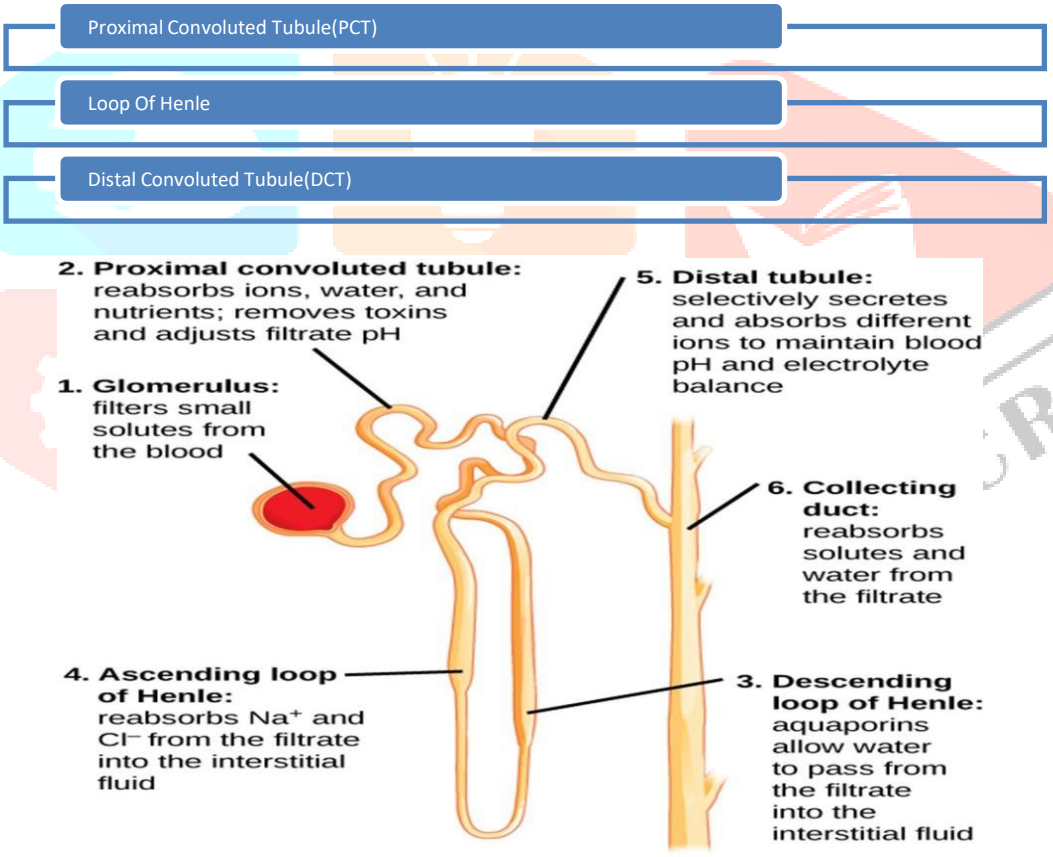
- Renal Corpus: Blood plasma is filtered in renal corpus
- Renal Tubule: The filtered fluid is passes into renal tubule



1) Glomerulus (Capillary network) 2) Glomerular (Bowmn's capsule)

Blood plasma is filtered in the glomerular capsule and the filterd fluid pass into the renal tubule.

For the filtration of fluid the renal tubule contain following three sections



History about the first reported renal disorder :

The renal disorder is the disorder :-

It is defined as decrease in the glomerular filtration rate in kidney .Due to these following reasons the renal failure occur=

•Kidney don't wash toxin due to these infection increase.

•When kidney do not filter then the electrolyte & waste formed in body

The history about the first reported renal disorder that include the **Proteinuria**, these proteinuria is the renal disorder which was discovered at the end of 18 th centuary . During 20 th centuary the new knowledge acquired has been more and vast. It contains the following points related to kidney disease-

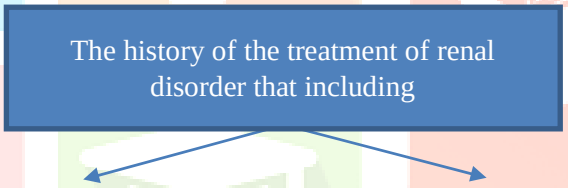
*Urine Formation mechanism

*Antibiotic

*Antihypertensive

*The therapies of renal disorder

a) Dialysis b)Transplantation



a) Hemodialysis b) Artificial Kidney

a) Hemodialysis :

The first hemodialysis in human being by Hass in the February 28 , 1924.

b) Artificial Kidney :

The artificial kidney was first developed by Abel , Rountree and Turner in 1913.

The need to study about renal disorders and it's statistics :

In these 20th Centuary , people are in busy schedule they do not take out time for theirhealth.

To make sure that people know the symptoms, treatment and the various function tests of the renal disorders mainly renal failure and renal calculi . Also the precautions and the general instructions realted with these renal disorder.

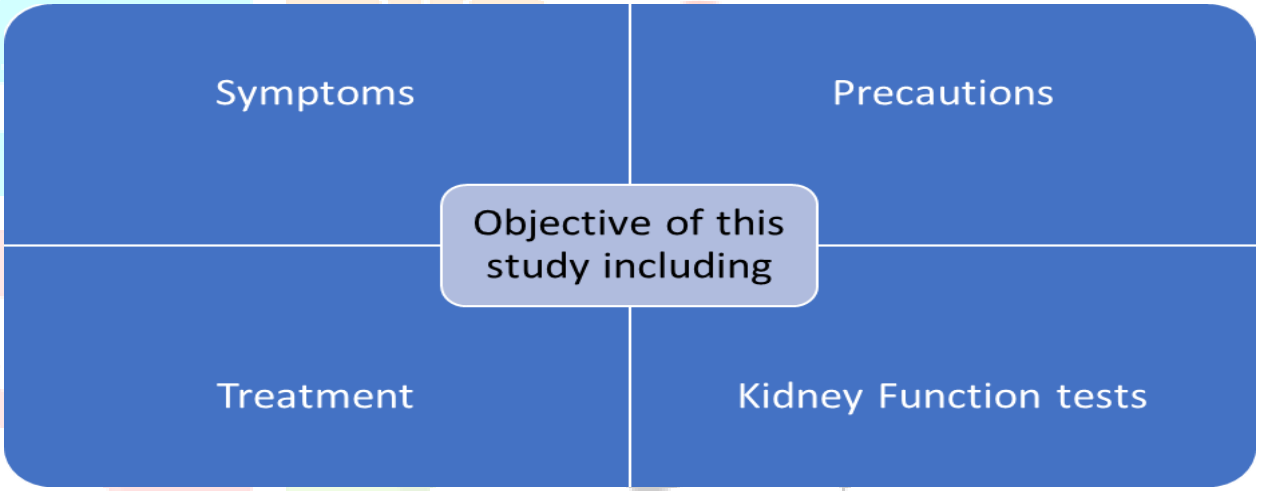
For example : A 30-year-old man, for instance, can have a full schedule. He starts throwing up and hasa

severe headache one day. He dismissed it. He believes that he consumed an acid-producing substance. He developed swelling on his foot, leg, and hand after a few days. He wasn't familiar with it. He went to the doctor that day, and they informed him that he was showing signs of kidney issues. Understanding theterms used to describe renal disorders is necessary in order to learn more about them.

Other illustration A 35-year-old woman has persistent, severe pain in her abdominal region. Additionally,she had an urination issue. She visited a gynaecologist one day, and the results of the sonography plainly demonstrated that the woman had a large calculus in her kidney. The size of her renal calculi necessitated surgical therapy for her .

The main objective of this study was showing that the renal disorders and the study related with this including the symptoms , precautions , treatment and various kidney function function tests.

Diagnosis :



Renal function Tests :

Renal function tests are prepared for the functioning of kidney.Types :

•Urine Examination

•Blood Examination

•Blood and urine Examination

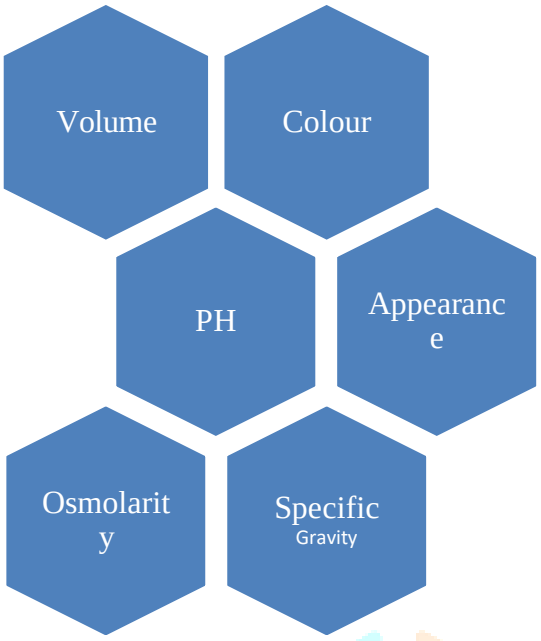
1) Urine Examination : It include the following examinations

•Physical Examination of Urine

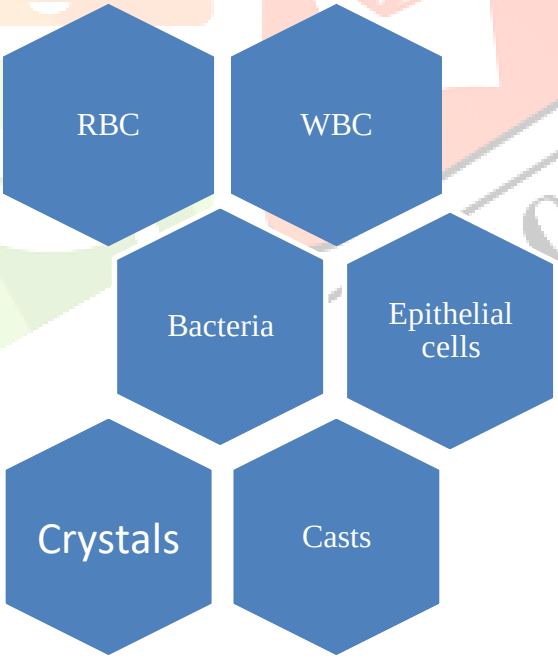
•Microscopic Examination of Urine

•Chemical Examination of Urine

• **The Physical Examination** : It include volume , colour , appearance . specific gravity , osmolarity ,PH and reaction .



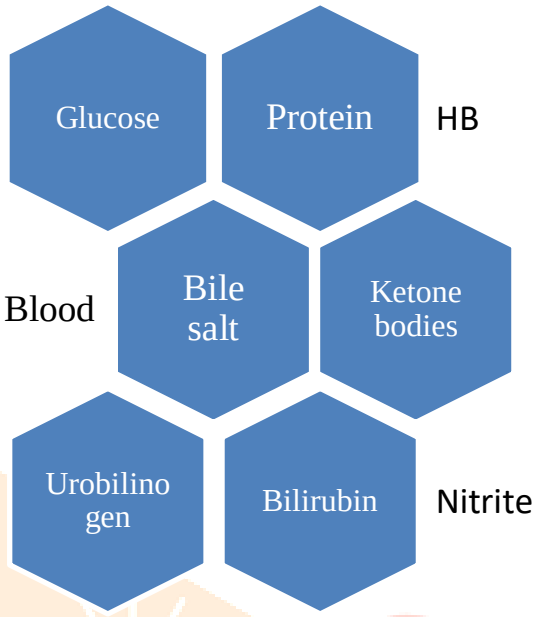
- **Microscopic Examination** : It include RBC, WBC , Epithelial cells , casts , crystals andbacteria.



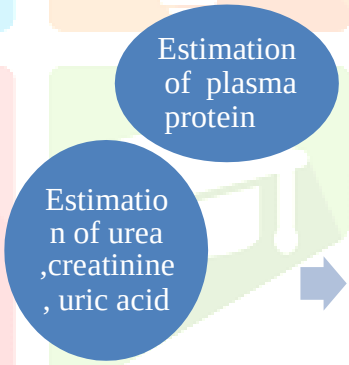
- **Chemical Examination** : It include glucose , protein, ketone bodies , bilirubin , urobilinogen ,bile salt , blood , HB, nitrite**.**

2) Estimation Of Blood :

•Estimation of Plasma protein

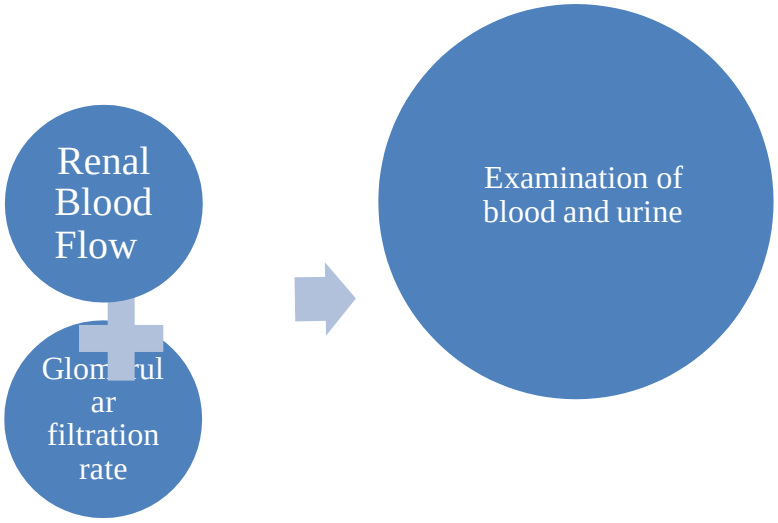


•Estimation of urea, creatinine and uric acid .



3) Examination of blood and urine :

•Glomerular filtration rate
•Renal blood flow



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atient Name : [redacted]
ge & Sex : 51 Years / Male
egistration No : 0012577
Referred By : [redacted]

Registration Date: 06/08/2022 02:37 pm
Collection Date : 06/08/2022
Report Date : 06/08/2022

CLINICAL PATHOLOGY

TEST	RESULT	UNITS	REFERENCE RANGE
URINE ROUTINE EXAMINATION			
Physical Examination			
Quantity	: 10 ml		
Colour	: Pale Yellow		
Appearence	: Clear		
Chemical Examination			
PH	: Acidic		
Protein	: Absent		
Sugar	: Absent		
Ketone	: Absent		
Bile Pigments	: Absent		
Bile Salts	: Absent		
Microscopic Examination			
Epithelial Cells	: 2 - 3	/HPF	
PUS Cells	: 2 - 3	/HPF	
RBC	: Absent	/HPF	
Crystals	: Not detected		
Casts	: Not detected		
Amorphous material	: Absent		

Barcode :

--- End Of Report ---

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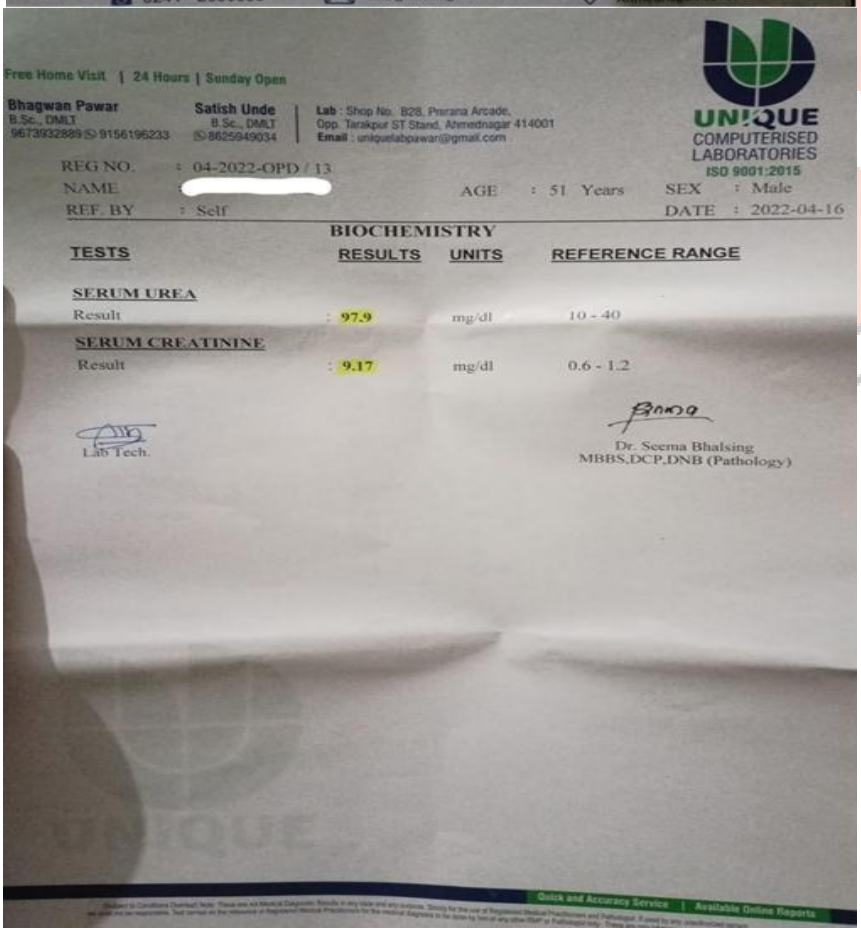

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REG NO. : 04-2022-OPD / 13
NAME : [redacted] AGE : 51 Years SEX : Male
REF. BY : Self DATE : 2022-04-16

BIOCHEMISTRY

TESTS	RESULTS	UNITS	REFERENCE RANGE
SERUM UREA			
Result	: 97.9	mg/dl	10 - 40
SERUM CREATININE			
Result	: 9.17	mg/dl	0.6 - 1.2

Lab Tech.

Dr. Seema Bhalsing
MBBS,DCP,DNB (Pathology)

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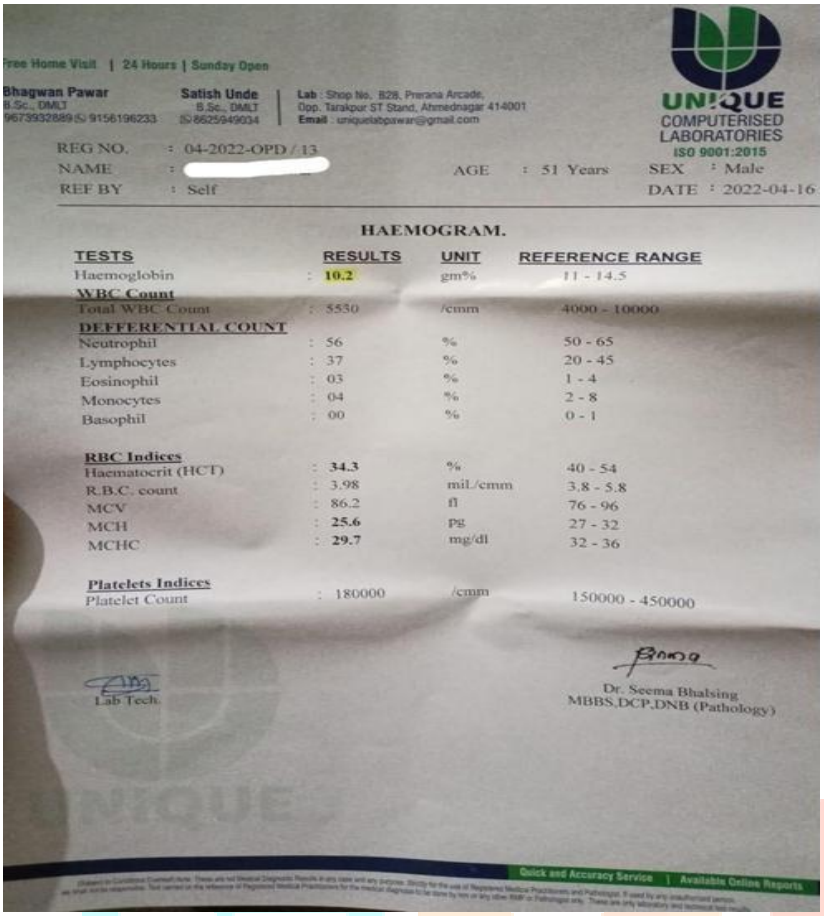

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REG NO. : 04-2022-OPD / 13
NAME : [redacted] AGE : 51 Years SEX : Male
REF BY : Self DATE : 2022-04-16

HAEMOGRAM.

TESTS	RESULTS	UNIT	REFERENCE RANGE
Haemoglobin	10.2	gm%	11 - 14.5
WBC Count			
Total WBC Count	5530	/cmm	4000 - 10000
DEFFERENTIAL COUNT			
Neutrophil	56	%	50 - 65
Lymphocytes	37	%	20 - 45
Eosinophil	03	%	1 - 4
Monocytes	04	%	2 - 8
Basophil	00	%	0 - 1
RBC Indices			
Haematocrit (HCT)	34.3	%	40 - 54
R.B.C. count	3.98	mil./cmm	3.8 - 5.8
MCV	86.2	fl	76 - 96
MCH	25.6	pg	27 - 32
MCHC	29.7	mg/dl	32 - 36
Platelets Indices			
Platelet Count	180000	/cmm	150000 - 450000

Lab Tech.

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Etiology of Symptoms of Renal Disorder :

1) You feel more lethargic, less energetic, or have problems focusing. Toxins and other pollutants may accumulate in the blood as a result of severe renal impairment. People may experiencefatigue, a feeling of weakness, and difficulty concentrating as a result. Anemia, which can result inweariness and weakness, is another side effect of renal illness.

2) You have problems falling asleep. Toxins do not exit the body through the urine when the kidneys are not filtering the blood adequately. This may make it challenging to fall asleep. Additionally, there is a connection between obesity and chronic kidney disease, and those with chronic kidney disease have a higher prevalence of sleep apnea than people without the condition.

3) Your skin is scratchy and dry. The functions of healthy kidneys are extensive. They help make red blood cells, keep bones healthy, remove wastes and surplus fluid from your body, maintain the proper level of minerals in your blood, and aid in the production of red blood cells. When the kidneys are unable to maintain the proper balance of minerals and nutrients in your blood, severe renal disease can frequently be accompanied by mineral and bone illness, which can manifest asdry and itchy skin.

4) You experience a greater urge to urinate. The need to urinate more frequently, especially at night, may indicate renal disease. Damage to the kidney's filters may enhance the urge to eat.

5) Your pee contains visible blood. When healthy kidneys filter wastes from the blood to produce urine, the blood cells are normally kept in the body. However, when the kidneys' filters are damaged, the blood cells may begin to "leak" into the urine. Blood in the urine can indicate malignancies, kidney stones, or an infection in addition to renal disease.

6) You have frothy urine. Excessive bubbles in the urine, particularly those that need multiple flushes to disappear, are a sign that there is protein present. Due to albumin, a common protein present in both eggs and urine, this foam may resemble the foam created when scrambling eggs.

7) The area surrounding your eyes continues to seem puffy. An early indication that the kidneys'filters have been compromised and allowed protein to escape into the urine is the presence of protein in the urine. Your kidneys may be releasing a lot of protein into the urine rather thanstoring it, which is why you may have puffiness around your eyes.

8) You have swelling ankles and feet. Your feet and ankles may swell as a result of salt retention brought on by diminished kidney function. Additionally, swelling in the lower limbs may be a symptom of heart illness, liver disease, or persistent leg vein issues.

9) Your appetite is low. This is a relatively widespread symptom, but one of the causes could be a buildup of toxins brought on by impaired kidney function.

10) You get cramps in your muscles. Kidney function issues can lead to electrolyte abnormalities. For instance, phosphorus levels that are out of control and low calcium levels can cause cramping in the muscles.

11) Hypertension It occur due to increase intravascular volume.

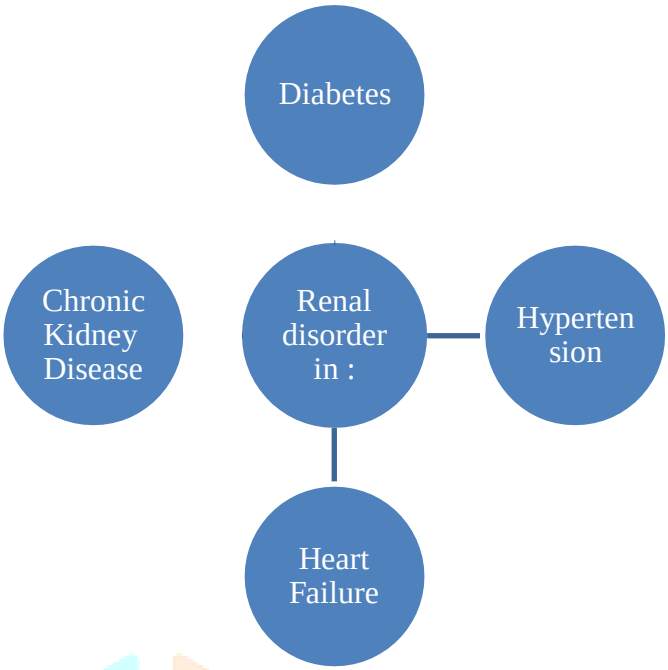
Drugs Induced Renal Disorder :

The drug induced renal disorders are the disorders which are commonly among :

a) Infant
b) Young Children
c) Renal Dysfunction Condition
d) Cardiovascular Disease

The drug causing some inflammatory changes.

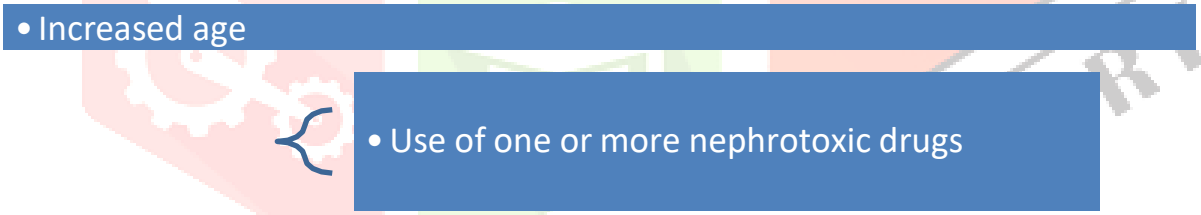
This Drug Induced Renal Disorder occur more in patients who is having the following disease :-



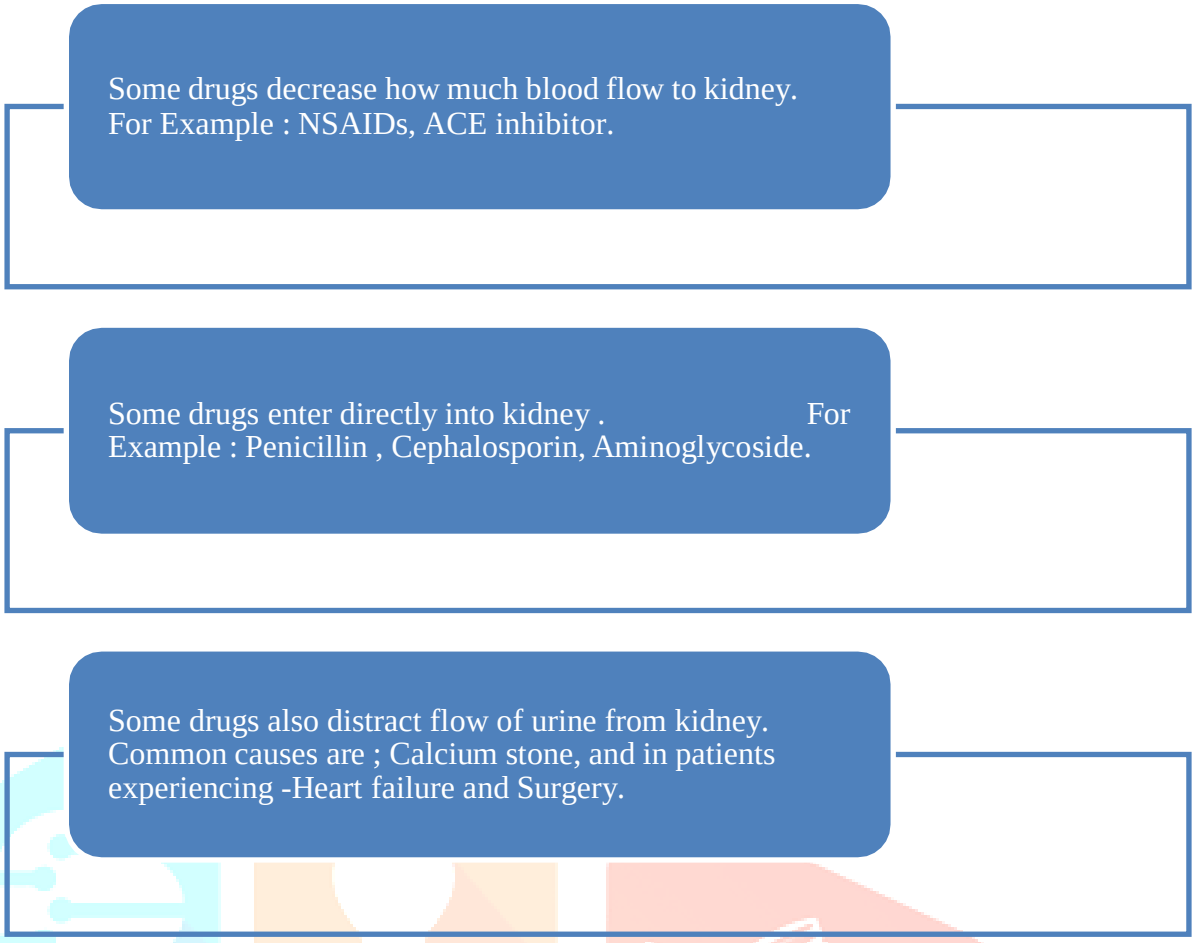
We should have to know about the Adverse Effect of drugs for preventing renal disorder.

If medication are given incorrectly the renal disorder occur or renal failure occurs. Also by using highdoses of drugs cause the renal disorder.

Risk factors for drug induced renal disorder are :



The following ways that the drug damage kidney :

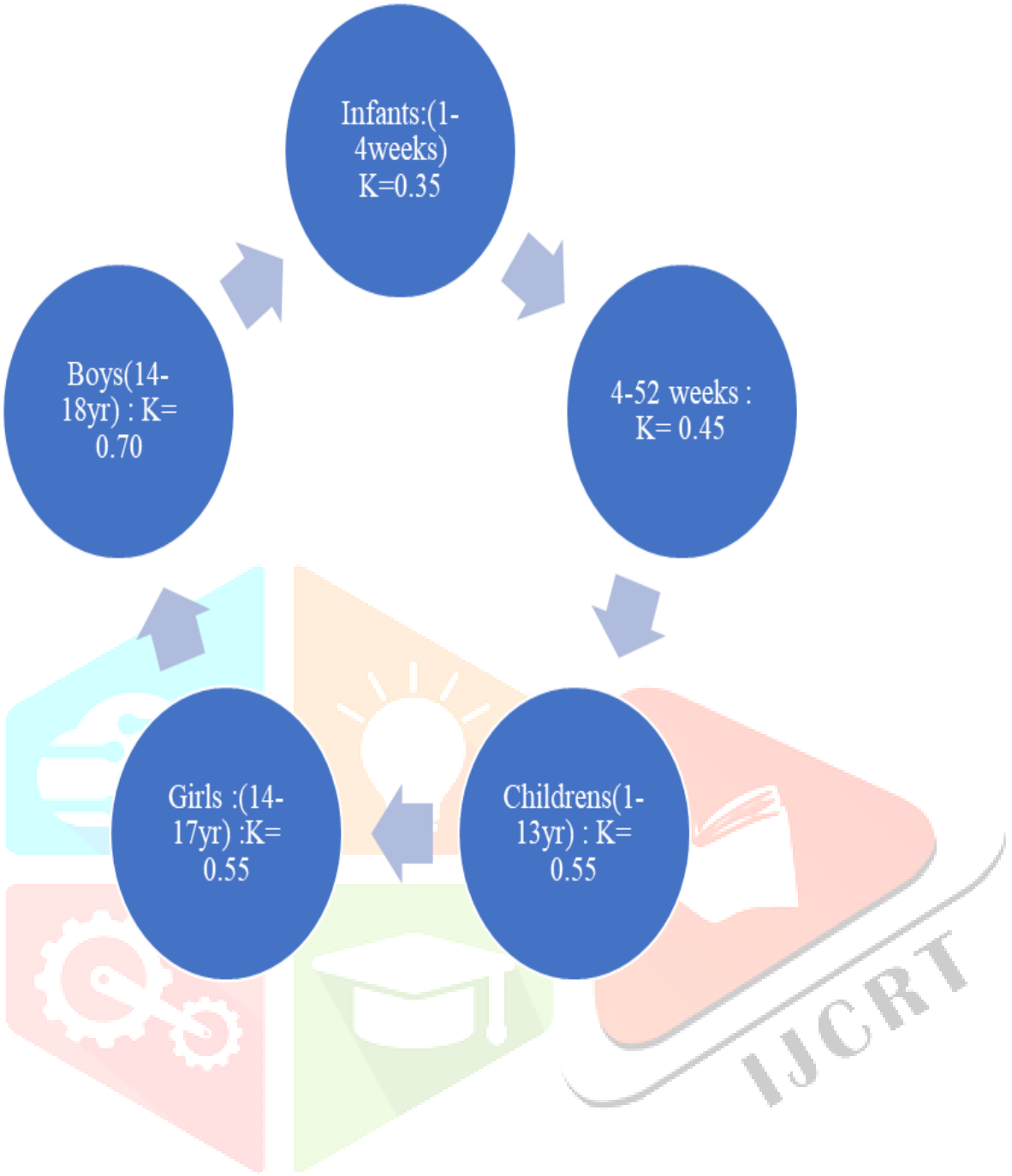


he renal function is estimated using glomerular filtration rate. And by the **Schwartz Formula .**

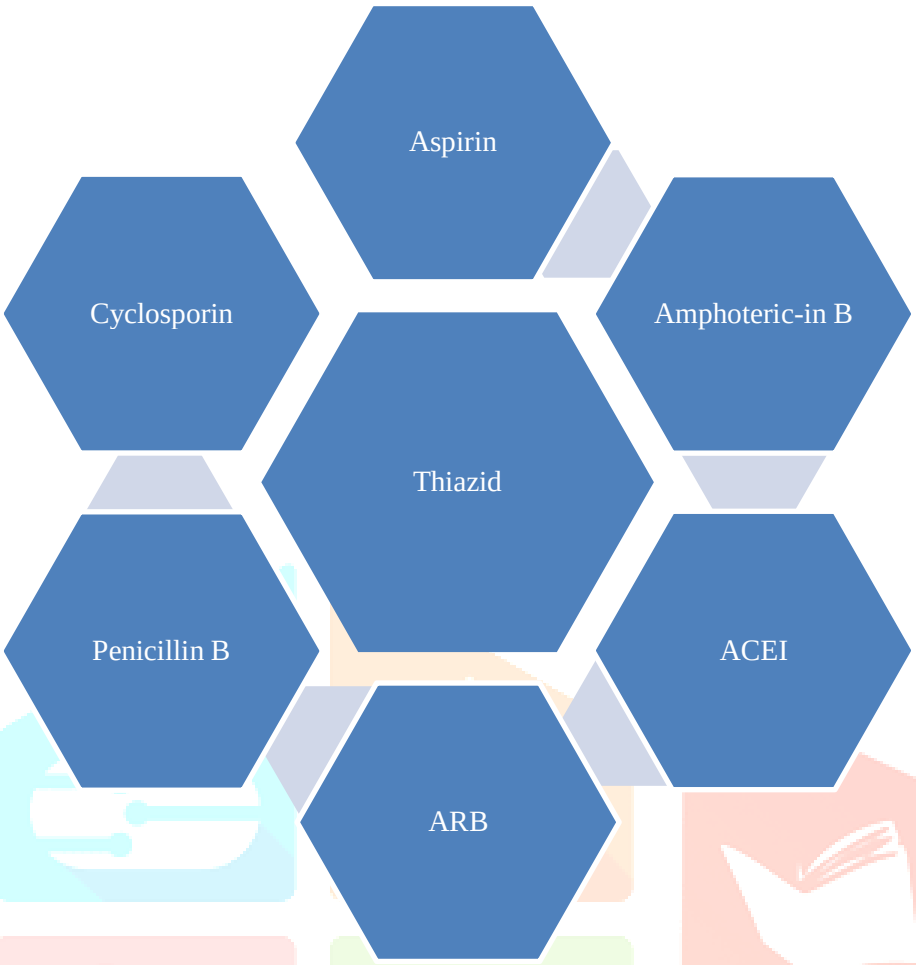
GFR (ml/min/1.73msq) = Length (cm) * K/ Serum Creatinine (mg/dl)

In this Schwartz formula ; GFR= Glomerular Filtration RateK= Serum Creatinine

Fig . The value of K i.e. Serum Creatinine is different in different age group.


Infants:(1-4weeks) K=0.35
4-52 weeks : K= 0.45
Childrens(1-13yr) : K= 0.55
Girls :(14-17yr) :K= 0.55
Boys(14-18yr) : K= 0.70

There are so many drugs used nephrotoxic drugs, BUT most commonly used nephrotoxic drugs are following :



- Aspirin :The aspirin is the non narcotic analgesic type of drug .That causing the Chronic Interstitial Nephritis.

- Amphotericin B : The amphotericin B is the Antifungal type of drug.It causing the Acute Tubular Necrosis, Distal Renal Tubular Acidosis type of renal toxicity.

- ACEI : The ACEI is the Angiotensin Converting Enzyme Inhibitor.

It is the Antihypertensive type of drug , and causing the Acute Kidney Injury.

- ARB : The ARB is the Angiotensin Receptor Blocker.

It is hypertensive type of drug , causing Acute Kidney Injury .

- Penicillin G : (Penicillin) type of drug .

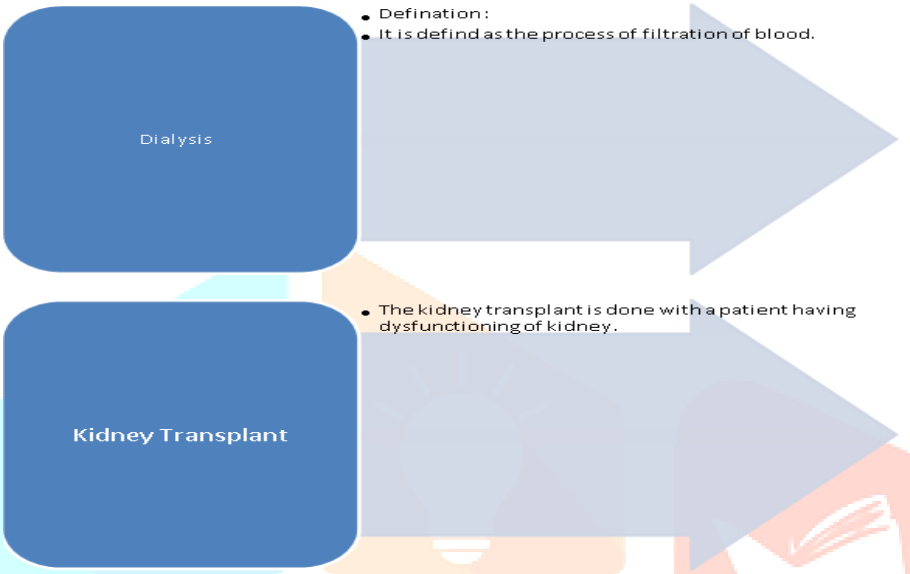
Causing Glomerulonephritis type of renal toxicity.

- Cyclosporin : It is an immunosuppressive type of drug.

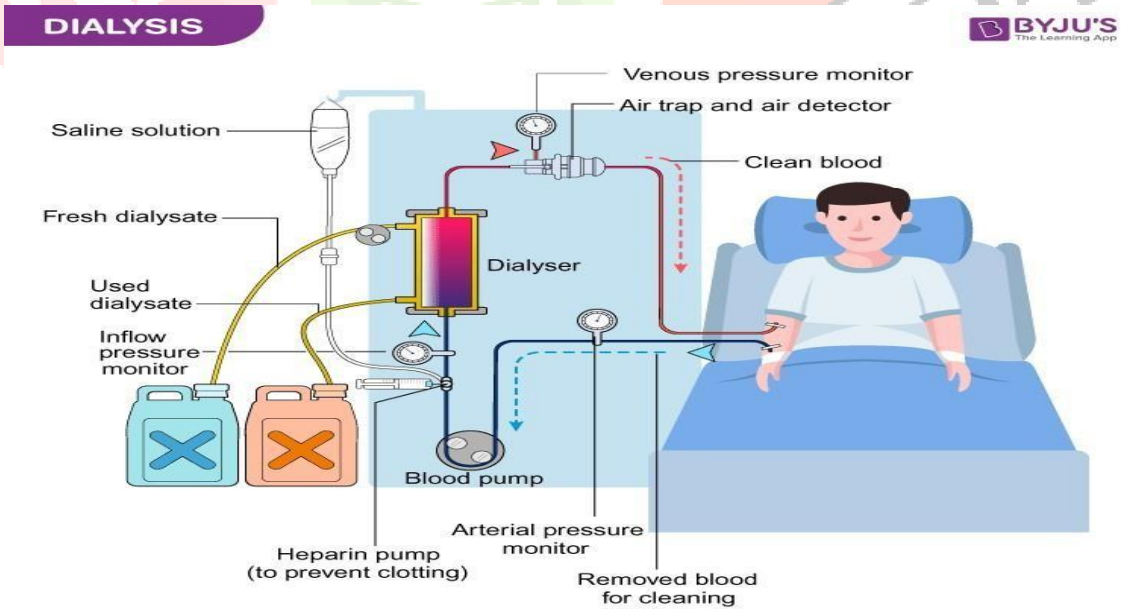
Causing Acute Tubular Necrosis, Chronic Interstitial Nephritis.

- Thiazid : It is a Diuretic class And having the renal toxicity of Acute Interstitial Nephritis.

Therapies of Renal Disorder :



Dialysis :



Introduction :

The Greek words dia, which means "through," and lysis, which means "loosening or splitting," are the origin of the word "dialysis." It is a type of renal replacement therapy where the artificial equipment that removes extra water, solutes, and toxins supplements the kidneys' function of filtering the blood. Acute kidney injury (AKI), which causes a sudden loss of kidney function, or chronic kidney disease, which causes a slow, steady loss of kidney function, both require dialysis to maintain homeostasis (a stable internal environment) (CKD). It is a measure to support patients who are ineligible for a kidney transplant, buy time until one can be performed, or tide over acute renal injury.

The prevalence of diseases that lead to end-stage renal disease (ESRD), the early detection of chronic kidney disease (CKD), and interventions to halt the course of end-stage renal disease all affect the incidence of renal replacement therapy (RRT) (ESRD). It is easier to start planned RRT when patients with a history of acute renal injury episodes, excessive proteinuria, and a falling estimated glomerular filtration rate (eGFR)are systematically identified. This helps to halt the upward trend in the occurrence of emergency RRT. All patients who are prone to develop ESRD and those who are caring for them must get accessible knowledge about potential treatment choices as well as proper physical and psychological preparation. Advancedplanning helps prevent issues related to dialysis, such as a broken catheter a fistula that inserts a temporary vascular access and results in infection, thrombosis, or bleeding

Biology and Anatomy :

Through two different methods, a semipermeable membrane is used in dialysis to remove solutesalong a concentration gradient. Diffuse clearance brought on by erratic molecular movement. Small molecules pass through the membrane with a faster rate of diffusive transport. When the osmotic force ofthe water forces solutes through the membrane along with it, a convective clearing happens (solvent drag)

Indications

Initiation of hemodialysis is required in cases of severe sickness related to:

- severe kidney damage
- Inflammatory encephalopathy
- Pericarditis
- hyperkalemia in danger of death
- recalcitrant acidosis
- problems resulting from end-organ hypervolemia (e.g., pulmonary edema)
- Malnutrition and failure to thrive
- Radicular neuropathy
- gastrointestinal symptoms that won't go away
- Patients with a GFR of 5 to 9 mL/min/1.73 m2 who are asymptomaticany ingesting of toxins

Equipment

Equipment for hemodialysis (HD) includes:

- blood flow
- circuit for a dialysis solution

The fluid circuit for dialysis consists of:

- A system for purifying water
- A proportioning device that blends, concentrates, and supplies the water to the dialyzersophisticated control options for ultrafiltration, alarms, and monitoring

Complications :

The most frequent side effects of hemodialysis include:

Intradialytic Hypotension: This condition worsens long-term outcomes because it increases mortality and the frequency of cardiac stunning, or irregular regional wall motion, during dialysis. A nadir systolic blood pressure reading less than 90 mmHg is closely correlated with death. It typically manifests as nausea, lightheadedness, dizziness, or other minor symptoms. The focus of treatment is to keep the patient inthe Trendelenburg posture while quickly injecting a 100 mL bolus of normal saline into the bloodstream. Once the patient's vital signs have stabilised, lower the ultrafiltration rate and monitor the patient.

Tense muscles: Unknown pathogenesis exists. Cramps are made more likely by hypotension, a high ultrafiltration rate, hypovolemia, and a low-sodium dialysis solution. These causes cause muscular hypoperfusion and vasoconstriction, which in turn impairs muscle relaxation.

The process of dialysis is done for removing waste materials & toxic substances. The rate of blood flow during dialysis machine is about 200 TO 300ml/min i.e. depend on the vein. Duration : The duration ofdialysis is depend on the severity of renal dysfunction.

It is done twice a week depend on the severity of renal dysfunction.

↓

After this period the dialysis is done twice a week.

↓

This cycle continues for the filtration of blood and to improve the functioning of kidneys

- **Kidney Transplant :**

People with end-stage renal disease can live longer and have better quality of life because to kidney transplantation. The two surgical techniques used for both procurement and transplantation are open and

laparoscopic. End-stage renal disease is the primary surgical indication. This activity addresses end- stage renal disease evaluation and therapy and emphasises the importance of the interprofessional team in diagnosing and treating this condition.

Introduction

Kidney transplantation is typically the first line of treatment for persons with end-stage renal disease. The field of kidney transplantation has grown tremendously over the past 50 years. Patients with end- stage renal illness who are transplanted after being placed on the waiting list have a better probability oflong-term survival than those who continue receiving dialysis. Furthermore, compared to dialysis patients, transplant recipients usually enjoy a superior quality of life and a 10-year survival advantage.Since Dr. Joseph Murray carried out the first successful kidney transplant in 1954, there have beenmajor developments in immunology and transplantation, allowing a wider spectrum of eligible donors and recipients.The transplantation gives the following things to the patient who is suffering from renal failure.

•Normal life to patient •It increase the stamina •It increase the strength •It gives long life span

Biology and Anatomy :

One of the body's paired retroperitoneal organs is the kidney. Along with the 12th rib, the diaphragm touches the kidneys superiorly and posteriorly. The right colonic flexure, liver (hepatorenal ligament), duodenum, and anterior head of the pancreas surround the right kidney. The pancreas anteriorly, the splenic arteries, and the colon's splenic flexure surround the left kidney. The lienorenal ligament connects the left kidney, which is anteromedial to the spleen, to the spleen. Both kidneys are located medially on and close to the psoas muscle. The adrenal glands are located on the top pole of both kidneys.

The perinephric fascia, also known as Gerota's fascia, surrounds both kidneys.

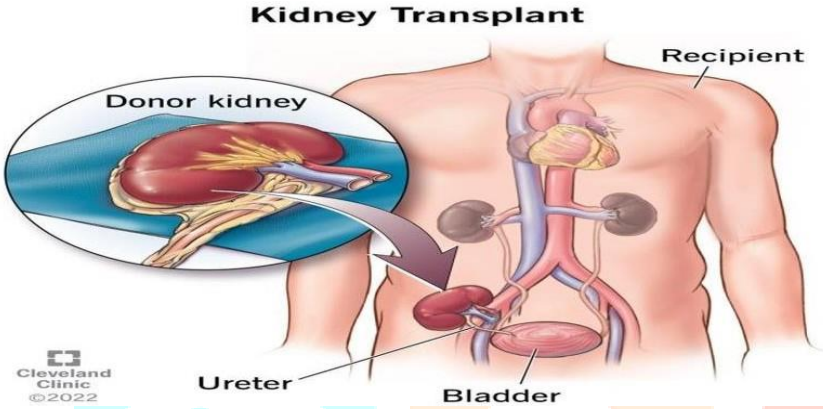
The kidney's hilar structures are arranged in the following order from anterior to posterior in the conventional anatomic position: renal vein, renal artery, and ureter/renal pelvis.To supply each kidney, the renal arteries leave the aorta just below the superior mesenteric artery on the lateral side. The inferior vena cava is behind the right renal artery. After then, the renal artery splits into its anterior and posterior portions. The kidney receives 25% of its blood from the posterior division and 75% of it from the anterior division. The segments formed by the arterial divisions include the apical, upper, middle, and lower segments of the anterior division and the posterior segmental branch of the posterior division. Segmental arteries do not exhibit collateralization because they are end arteries.

The renal vein is often located in front of the renal artery. The venous plexus capillaries form arcuate veins, which eventually drain into interlobular veins, trunks, and finally the renal vein, in a manner similar to the arterial distribution. Given that the vena cava is ipsilateral to the right renal vein, it frequently isn't very long, drains straight into the cava, and doesn't have any tributaries. To get to the inferior vena cava, the left renal vein travels anterior to the aorta. Since it is longer than the right renal vein by two to three times.

The gonadal vein, adrenal vein, inferior phrenic, lumbar, and paravertebral veins are just a few of the leftrenal vein's many tributaries, in contrast to the right renal vein.

Contraindications :

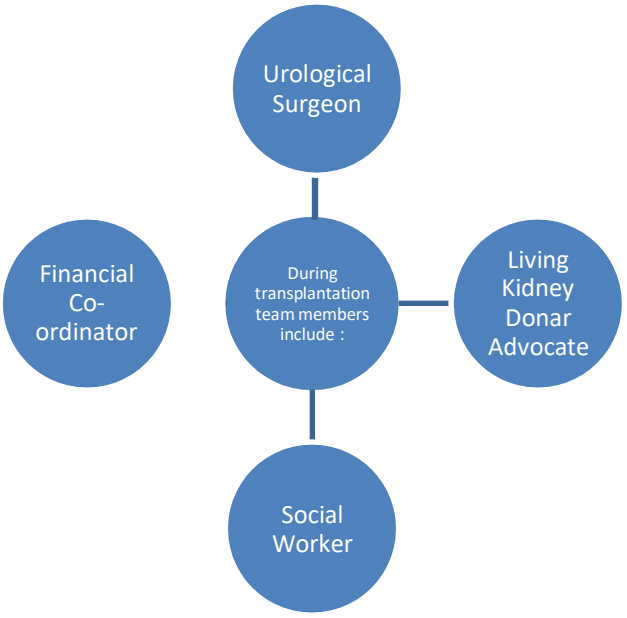
The inability to endure surgery due to severe cardiac or pulmonary disease, active cancer, active infection, active drug misuse, or uncontrolled mental illness are absolute contraindications to kidneytransplantation. Relative contraindications include frailty, psychiatric issues, a short life expectancy, morbid obesity with a recommended body mass index (BMI) less than 40 kg/m, history of noncompliance with dialysis schedules or medication regimens, and others that may vary depending on the institution and geographical area (defined as less than the anticipated waiting time for a kidney).



Question : What is life of transplanted kidney patient ?
Answer : It gives better quality of life to the patient -15 years.

Question : Can donar also live a normal life after kidney transplant ?
Answer: Yes , donar also lives a normal life by following proper diet and lifestyle.

Question : Can women bear a child after kidney transplant ?
Answer : Yes women bear a child after kidney transplant.



Diet chart for patients having renal failure

Do not Eat	Eat
1) Tea, coffee, cigarette, tobacco, drinks Alcohols, egg or meat. 2) Oily food , spicy food , soda , snacks, sauce. 3) Pickle 4) Spinach 5) Tomato 6) Potato 7) Fermented Products 8) Bakery Products 9) Sago 10) Noodles 11) Ice-cream 12) Green Chilies 13) Cold Drinks	1) Only rock salt used instead of plain salt. 2) In fruits : Apple Guava Papaya Pineapple 3) Milk : Only cow milk; because other milks containing fats. 4) Vegetables Like : Pumpkin Padwal Drumstick Bittergourd

Should be taken in less :

•Carrot

•Beet

•Ghee/Oil

Guidelines for choosing nutritious foods :

•Use a blend of spices in place of salt when cooking. If not, substitute rock salt for table salt.

•Incorporate vegetable toppings like peppers, spinach, and broccoli into your diet.

•Instead of frying, try baking or boiling eggs, chicken, and fish. since frying uses a lot of oil.

•Serve meals devoid of gravy or any other fats.

•Seek out foods with little to no added sugar.

• Drink nonfat milk.

•Eat full grain foods every day, such as whole wheat, brown rice, and oats. •When making toast andsandwiches for breakfast, use whole-grain bread.

•Read food labels before consuming anything and pay attention to the amounts of fats, trans fats, cholesterol,salt (sodium), and sugars.

Avoid the snack period and opt for orange juice instead of eating or peeling an orange. Consider keeping a diet log of your daily or weekly meals. You can use it to determine when you frequently consume high-fat foods.

Precautions And Preventing measures for renal disorders :

If you have kidney disease, you're more prone to develop it diabetes, hypertension, and heart disease.

By avoiding or controlling medical problems like diabetes and high blood pressure that harm the kidneys, you can protect them. The actions listed below may support maintaining kidney health as well as the overall wellness of your body.View further materials on exercise and weight loss to boost your motivation.

Get adequate rest.

Sleep for 7 to 8 hours every night. Improve your sleeping habits if you have problems falling asleep .

Quit smoking.

Stop smoking and using other tobacco products.

Limit your alcohol consumption.

Alcohol use that is excessive can raise blood pressure and add extra calories to the body, which can result in weight gain.Control heart disease, diabetes, and excessive blood pressure.The best strategy to prevent kidney damage in people with diabetes, high blood pressure, or heart disease is to **maintain blood glucose** levels that are close to your target range. Monitoring your blood glucose, often known as blood sugar, is crucial for managing diabetes. One or more times a day, you could be asked by your medical team to test your blood sugar.

Maintain blood pressure levels that are close to your target. Most diabetics should aim for blood pressure below 140/90 mmHg . All medications should be taken as directed. Discuss the possibility of renal protection with your doctor if you use certain blood pressure medications known as ACE inhibitors and ARBs. These drugs have names that end in -pril or -sartan.

Use caution when taking **over-the-counter painkillers** on a regular basis. Nonsteroidal anti-inflammatory medicines (NSAIDs), including ibuprofen and naproxen, might harm your kidneys when taken frequently.

Learn more about how your kidneys and over-the-counter medications interact.

Keep your **cholesterol levels** within the desired range to help avoid heart attacks and strokes. LDL and HDL are the two types of cholesterol found in your blood. "Bad" cholesterol, or LDL. "Good" cholesterol, or HDL.

Conclusion :

Chronic renal failure is a crucial stage in the development of chronic renal disease and is linked to comorbidities and consequences that manifest early in the illness's progression. These problems are at first asymptomatic, but they continue to advance and may eventually start to show symptoms and become irreversible. These diseases are amenable to interventions with relatively straightforwardtreatments that have the potential to avert negative consequences early in the course of chronic renal failure.

We have a fantastic chance to transform the paradigm of managing chronic renal failure and enhance patient outcomes by accepting these truths.

Important points :

- Exercise : Regular physical activity is essential for circulation and appropriate bodily mobility.
- Diet is vital; foods that are salty, greasy, or made with flour should be avoided.

- Fluid Intake: The recommended daily fluid intake is two to three litres.
- Salt: Consuming too much salt can cause uric acid to build up in the body.
- Avoid smoking because it harms or reduces the function of the kidney.
- Pain Killer: Painkillers have a significant impact on the kidneys.

- Hypertension: Once you cut back on your salt intake, your hypertension will go down.
- Diabetes=Avoid foods that contain sugar.
- Followup: It's essential for preserving excellent health.

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