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RESEARCH ARTICLE

Studying the Effect of Kidney Failure Disease on Some Physiological Parameters in Males

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ABSTRACT

When the kidneys are unable to efficiently remove waste, kidney failure ensues. Acute or chronic illness may be present.

Among the most important Chronic kidney failure is brought on by diabetes and high blood pressure. Prostate problems, hereditary kidney disease and complications resulting from taking certain medications. We conducted a study of this study in Imam Al-Hussein Teaching Hospital, Department of Renal Failure, on male patients on the date of 1/7/2021. This study included taking 20 samples from male patients and 20 samples from healthy people, and the samples were tested for uric acid, creatinine, and urea tests. Conducting tests with electronic devices after taking the blood sample and separating the serum from the blood. The percentage of patients was very high, which required treatment with dialysis.

INTRODUCTION

A healthy kidney works to remove waste products and fluids from the bloodstream and excrete them in the urine, and the kidneys also work to maintain the internal balance of water and minerals (calcium, phosphorus, magnesium, sodium, potassium, chloride, etc.) in the body.

Kidney failure is a disorder resulting from the dysfunction of the kidneys, where the normal, healthy kidney acts as a vital filter for the body, maintains the balance of body fluids, chemicals and acidity of the blood, and produces hormones that control the production of red blood cells and bone growth and kidney failure leads to the accumulation of waste products in the tissues It affects all age groups, especially the elderly. The kidneys lose their ability to produce enough of the hormone[1] (erythropoietin) that stimulates the formation of new red blood cells, resulting in a low number of red blood cells (anemia). The kidneys also lose their ability to produce enough calcitriol, an important element of bone health. Children's bone development is impacted by kidney failure. Kidney failure can result in weak and malformed bones in children and adults. Kidney failure comes in two flavors.

Acute Renal Failure

Acute kidney failure is the sudden loss of kidney function,

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which leads to the accumulation of fluids and waste products inside the body, and the subsequent imbalance of salts and minerals in it, and thus the possibility of death due to acute kidney failure, especially among the elderly, and people who take drugs that suppress the immune system, as well as people People with severe chronic diseases such as; Diseases of the liver, heart or lungs.[2]

- Causes of severe renal failure the following:
- The sudden drop in blood flow in the kidneys is one of the main factors leading to renal failure. This fall occurs as a result of severe bleeding, and this may occur during a heart attack, surgery, shock, or extreme dehydration.
- Taking drugs that cause nephritis or take drugs that are toxic to the kidneys. After performing complex surgeries.
- Dehydration.
- Failure of liver function.
- Kidney artery narrowing obstruction or blockage of urine leaving the kidneys. This occurs in instances of enlarged bladder or prostate tumors or because of illnesses that appear around the kidneys.
- Having diabetes.
- Severe disturbances of the kidneys.
- Continuous rise in blood pressure.
- Trauma, burns, or severe wounds.
- Kidney blockage with stones.[3)]

Acute renal failure symptoms include infection symptoms that differ from person to person, and the symptoms depend on the cause of kidney failure. In some cases, it may not show any symptoms at all, and a change in kidney function may be diagnosed in a person when he is given blood tests for another reason or disease. Symptoms of acute renal failure comprise:

- Significant less urine being produced. Feeling sick, vomiting and loss of appetite.[4]
- A sensation of abnormal sleepiness; It should be noted that confusion and drowsiness precede coma in untreated patients.
- Headache.
- Swollen legs with fluid accumulation. Mental changes may appear, such as; Fatigue, agitation, confusion and mood swings.
- Diagnosing acute kidney failure:

There are many tests to confirm the occurrence of kidney failure, and the condition is evaluated to find out the disorders resulting from the deterioration of kidney function, Among the most important tests are the following:

- urine and blood tests determine if or not there is renal failure, but they do not necessarily reveal its cause. Taking a sample from the kidney for testing.
- Ultrasound examination of the kidneys and abdomen, or abdominal x-ray or computer tomography or magnetic resonance imaging.
- Treatment of acute kidney failure:

Most people with acute kidney failure often recover after a few days, weeks, or months, depending on the causative agent, given that the treatment has been done correctly, and the treatment of acute renal disease is dependent on the causative factor, the severity of the issue and any related issues.[5]

The treatment aims to stop the aggravation of kidney failure by treating the causative agent, and it is necessary to prevent the accumulation of fluid and excess waste, and treatment methods include the following:

- Taking diuretics to increase fluid output from the body.
- Limiting protein intake (a low-protein diet) to spare the kidneys from dealing with it.
- Prompt treatment of infections.
- Taking drugs that increase kidney blood flow.]
- The use of drugs to control the level of potassium in the blood.
- Hemodialysis, peritoneal dialysis, or hemodialysis for patients whose condition does not improve, if the kidney damage is severe.

Chronic Renal Failure

Chronic kidney failure is a serious, long-term provided that affects your kidneys and causes a general and continuous deterioration in their functions, and ultimately causes kidney failure in the final stage. In this stage of chronic kidney failure, kidney function falls to less than 25% of the normal level, and thus the kidneys gradually lose their capacity to remove waste from blood and get rid of them in the urine, which leads to the accumulation of toxins and fluids in the body.

- Symptoms of chronic kidney failure:

Start with a few symptoms that you may not notice very often; Among the most important are General fatigue, lack of activity, and lethargy.

- Rare passage of urine. Apnea.

Feeling sick.

- Muscle spasm.
- Back Pains.
- Chronic renal failure causes

There are many causes of chronic kidney failure, and one-fifth of cases are of unknown causes, and the following causes can lead to chronic kidney failure:

- The incidence of chronic and uncontrolled diseases such as; Diabetics, high blood pressure.
- Glomerular nephritis. Inflammation of the kidneys of the kidneys.
- Vesicoureteral backflow.[6]

Recurrent renal and pelvic inflammation.

- Taking some medications too much and over a period of several years can damage the kidneys. Exposure to mercury and lead. Long-term obstruction of the urinary tract due to.

an enlarged prostate.

- Infection of the renal vessels with disease. Diseases that lead to chronic kidney failure
- Many diseases ultimately lead to chronic kidney failure, the most important of which are:

High blood pressure that goes untreated.
Complications of urinary schistosomiasis.

- The presence of stones in the kidneys or in the urinary system. An enlarged prostate.
- The presence of chronic microbial renal infections.
- Birth defects, especially congenital renal cyst, or congenital narrowing of the ureter, urethra and bladder neck. Diabetes that goes untreated.
- gout (King's disease).
- The wrong use of some drugs and analgesic medicines.
- complications of chronic kidney failure

As a result of chronic kidney injury, many complications occur, including:

- Cardiac arrest due to changes in the chemical balance and blood flow due to kidney failure. Potassium levels increase in the blood due to the kidneys' inability to eliminate excess potassium, and this can cause the heart to stop, in addition to its effect on the

Nervous system.

- Anemia. The kidneys, in their normal state, secrete important hormones. Like Red blood cell formation is stimulated by a hormone called erythropoietin. In chronic kidney failure, fewer red blood cells are produced and anemia will arise. High blood pressure and osteomalacia. This is because the kidneys produce hormones that

affect blood pressure and bone strength, which are affected in chronic kidney failure.[7]

- Diagnosing chronic kidney failure:
- Check pulse, heart rate, and blood pressure, as well; Body weight, eyes, examination of the abdominal area to see if there is pain when pressing on it, examination of the ankles and legs for swelling, for example, examination of the degree of attention and focus and

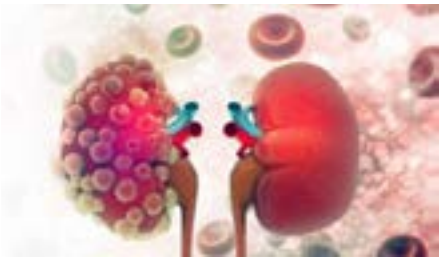
Other tests.

- Conducting blood tests to measure levels of minerals and salts (such as; sodium, potassium, chloride, bicarbonate, calcium, magnesium, and phosphorous).
- A blood test for kidney function, which is a test for urea nitrogen and creatinine.
- Counting the number of red blood cells to detect anemia.
- Urine collection over 24 hours to detect creatinine and protein (periodically only).
- Treating chronic kidney failure:

Treatment of chronic kidney failure focuses on maintaining kidney function for as long as possible, preventing any complications, relieving symptoms, and treating the factors that

lead to it, all of this and others through the following:

- Control of high blood pressure, acid urine, and diabetes in people with these diseases.[8]
- Prompt treatment of infections. • Receive injections of the hormone erythropoietin to stimulate red cell production in case of anemia. Hemodialysis, when the kidneys lose 90% of their function, and hemodialysis cleans the body's blood remnants, adding too much water and salt, using medical devices. weekly, for the remainder of one the duration is between three and four hours.



- Kidney transplantation when available.[9]

MATERIAL AND METHODS

Twenty patients (all of whom were male) underwent all biochemical analytical tests for this study. Their ages ranged from 20 to 30 years. Twenty healthy men were chosen to form the control group. Their age range was similar to that of the patients. Blood was drawn from the subject in the morning and put into plain test tubes to measure some biochemical parameters:

Urea, uric acid and creatinine.Measurement of serum urea by,[10]

creatinine by[11] and Uric acid by.[12]

Urea, uric acid, and creatinine were used to calculate the mean+- standard deviation of all parameters obtained in healthy and sick groups.

RESULTS

Table 1 displays the substantial rise in urea (P0.05).in urea, creatinine and uric acid in

Patient groups compared with the control group (Figures 1-3).

DISCUSSION

In this research, we found that all parameters were elevated significantly ($p<0.05$) in patients with renal failure compared with the control. Initially, the reason for the rise uric acid is the substance produced from the metabolism of nuclear proteins and meat in the body, which dissolves in the blood, then moves to the kidneys,[13] and is excreted outside the body through urine. Increased uric acid is the inability of the body to get rid of uric acid through the urine due to genetic or health reasons that lead to an increase in the production or increase of uric acid levels in the blood above the normal range, and thus the accumulation of uric acid in the form of microscopic crystals that causes many diseases and complications, The accumulation of uric acid causes long-term kidney failure, so treatment is through dialysis or kidney transplantation.[14]

Cause of high urea is the nitrogenous substance found in the body. Where urea is produced due to the natural waste produced by the body after eating, and the liver analyzes the protein in the food, and when the kidneys are unable to dispose of these wastes, they move through the blood and are discharged through the urine.[15] Due to the risk of kidney

Table 1: Comparison of urea , ceratinine and uric acid (mg/dl) levels in the patient and control groups for men.

variables	*groups*	*Mean*	*S. D*	*S.E*	*P.V*
Urea mg/dl	control	30.83	9.00	2.01	0.00
	Kidney failure	194.14	42.30	9.46	0.00
Creatinine mg/dl	control	0.73	0.21	0.05	0.00
	Kidney failure	11.97	3.04	0.68	0.00
Uric acid mg/dl	control	4.66	1.19	0.27	0.00
	Kidney failure	9.95	1.03	0.23	0.00

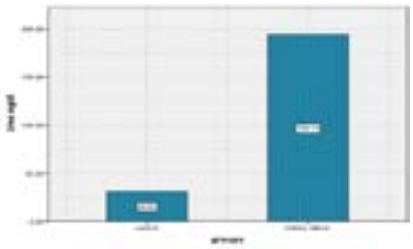


Figure 1: comparison of serum Urea (mg/dl) levels in the patient's male group compared to the control group.

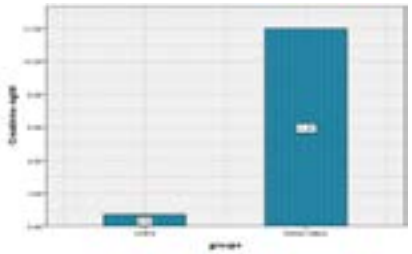


Figure 2: Serum creatinine (mg/dl) values in the patient and control groups for men were compared.

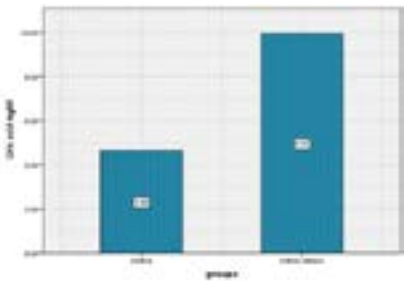


Figure 3: Comparison of serum Uric acid (mg/dl) levels in the patient and control groups for men.

failure, the high quantity of urea in the blood has an impact on all bodily systems, including renal function. The kidneys perform the function of filtering the blood from waste and toxins and excreting them with the urine, so if they are damaged for any reason, it may lead to high levels of some toxins in the blood,[16] including urea and in this aspect, high urea in the blood or uremia is considered. One of the dangerous conditions that may threaten the life of the injured if left untreated, as its symptoms appear when the kidneys have been severely damaged, and the patient suffers from one more than some of the problems. Such as headache, nausea, leg cramps, extreme tiredness and fatigue, weakness or loss of appetite, difficulty concentrating, vomiting, and nausea. and finally cause of high creatinine. The relationship of high creatine to kidney disease can raise creatinine levels in the blood, where creatinine is the waste product in the metabolism of muscles.[17,18] When you exercise, muscles degrade proteins, including creatine and amino acids. Approximately 2% of the creatine consumed for energy production enters the body. Creatinine circulates throughout the bloodstream,but high levels of creatinine are not a direct cause of symptoms and anyone with higher than typical levels not notice any change, but symptoms connected to elevated creatinine are often due to impaired kidney function and symptoms include fatigue, headache,, nausea or vomiting or a loss of appetite.[19] Weight loss, swollen hands and feet, itchy skin, painful or frequent urination, or a change in the color of the urine, but high creatine does not always imply that mean that a person has chronic kidney disease, but it indicates the demand to consult a specialist.[20]

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