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Research Article

A Comparative Study Evaluating The Level Of Urea And Creatinine In Males And Females Of Kidney Failure Patients In Suq Al-Shuyukh

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ABSTRACT

This study was conducted in the labs of the Suq al-Shuyukh Hospital in Thi-Qar province for the period from January to March of 2020. The study included of 46 blood sample of patients with renal Failure recorded in Suq al-Shuyukh Hospital (23males) and (23 females) . The current study aimed to compare the concentration of urea and creatinine between males and females, as well as the comparison between patients and healthy (control). The results of the current study showed a significant increase in the concentration of urea and creatinine in patients compared to healthy and showed no significant differences in the concentration of urea and creatinine between males and females.

INTRODUCTION

Kidney failure, also known as end-stage kidney disease, is a medical problem in which the kidneys no longer function. The renal failure was subdivided in to acute kidney failure AKF (develop rapidly) and chronic kidney failure CRF (long term development). Symptoms may include leg swelling, feeling tired, loss of the appetite, vomiting or confusion. Complications of acute disease may include uremia, or volume overload, high blood potassium Complications of chronic disease may include high blood pressure, heart

disease, or anemia (Norton et al., 2017). There was no enough information on how to better screen and prevent for the disease, That increasing incidence rate of CRF warrants a need for an epidemiological approach to better demonstration the disease and its prevention. While statistics have been identified concerning world demographics (Sanyaolu et al ., 2018). Renal diseases are estimated in terms of comprehensively renal function glomerular filtration rate (GFR) and the existence of kidneys damage confirmed by either kidney tissues biopsies or another markers of

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kidney damage(Askar et al.,2019). Chronic kidney disease is a common medical condition in which there is a loss of kidney function over time (Mandal et al.,2014). Chronic kidney diseases was associated with increased risks of many co-morbidities; not limited to but including chronic renal failure and cardiovascular disease .CKD is an emergent worldwide public health problem. The prevalence of end-stage renal disease (ESRD) is increasing in the United States. Chronic kidney disease is increasingly common in developing and developed nations (Sanyaolu et al ., 2018). Chronic renal failure (CRF) is renal failure, which is generally progressive and nonreversible. Presently, the most common cause of CRF is diabetes related renal disease. Fifty to 60 percent of CRF is of diabetic origin. Frequently, the term end stage renal disease (ESRD) is used for advanced CRF(Mandal et al.,2014). Awareness of the disorder, however, remains low in many communities and among many physicians. The incidence of end-stage kidney disease has been reduced, where management strategies have been implemented Screening and intervention can prevent chronic kidney disease(Jha et al.,2013).

MATERIAL AND METHODS

Subjects :-

This study was conducted in the labs of Suq al-Shuyukh Hospital in Thi-Qar province, during the period from January 2020 to March.

Blood sample collection:

Blood samples were collected by venipuncture from 46 patients (23 males, 23females) and 23

controls (five milliliters of venous blood) were drawn by disposable syringe under aseptic technique.

Estimation of serum urea concentration

Wills and Savory's method (1981)was used by using of kits were supplied by Biomerieux .

Estimation of serum creatinine concentration

Tietz's method (1999) was used by using kits were supplied by Biolabo (France) .

Statistical analysis: -

The analyses of data were expressed as mean \pm SD. The comparisons between each kidney failure patients group with age matched healthy control were performed with T-test using computerized Minitab program. $P < 0.05$ was considered to be the least limit of significance.All the statistical analysis were done by using Pentium-4 computer through the (SPSS) Statistical Package For Social Sciences (version -23).

RESULTS

Comparison of urea and Creatinine concentration between control and patients

The results of the current study show significant increase in concentration of urea and Creatinine ($p > 0.05$)in a group of patients compared with a group of control as concentration as follow: urea concentration (105.5870 ± 42.78555) for patients compared with a group of control (21.9565 ± 8.49855), while Creatinine concentration (2.8457 ± 1.78409) for patients compared with a group of control ($.6696 \pm .13630$) with a significant difference (0.05) as seen in Table (1).

Table (1) Comparison of urea and Creatinine concentration between control and patients

	Case	N	Mean	Std. Deviation	Std. Error Mean
Urea	Patient	46	105.5870	± 42.78555	6.30839
	Control	23	21.9565	± 8.49855	1.77207
Creatinine	Patient	46	2.8457	± 1.78409	.26305
	Control	23	.6696	$\pm .13630$.02842

Degree freedom (df)=67

Sig at 0.05

Comparison of urea and Creatinine concentration between females and males

The results of the current study show no significant increase in concentration of urea and Creatinine ($p > 0.05$) in a group of females compared with a group of males as concentration as follow: urea

concentration (86.6957 ± 35.35975) for females compared with a male (21.9565 ± 8.49855), while Creatinine concentration (2.3217 ± 1.22436) for females compared with male (3.4435 ± 2.04558) with a significant difference (0.05) as seen in Table (2).

Table (2). Comparison of urea and Creatinine concentration between females and males

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Urea	Female	23	86.6957	± 35.35975	7.37302
	Male	23	116.8261	± 47.45012	9.89403
Creatinine	Female	23	2.3217	± 1.22436	.25530
	Male	23	3.4435	± 2.04558	.42653

Degree freedom (df) =44

Sig at 0.05

DISCUSSION

In CRF the increase of serum urea is proportional to the progression of the disease, but it is highly influenced by a catabolic state or an excessive protein ingestion, leading to a higher production of other waste substances of protein catabolism (Montini et al., 2003) while the increase in creatinine level in the serum of patients with CRF is attributed to the decrease in the number of functioning nephrons, which would reduce the GFR, which causes major decrease in renal excretion of water and solutes (Guyton and Hall, 1996). The reason for the high creatinine concentration is due to the fact that it is a compound formed due to metabolic processes and then excreted into the urine in the normal state, but in the case of kidney failure, a kidney defect will occur that makes it unable to filter and excrete excreta, which makes it rise to its high amount in the blood. Moreover, patients with kidney failure they have a low value of the glomerular filtration rate and that the creatinine concentration is inversely proportional to it, since any decrease, even if it slight, leads to an increase in the concentration of creatinine in the blood serum (Hsu et al., 2008). The results of this study were consistent with the results of the Ali et al., (2017) study, which showed that there was no significant difference for urea and creatinine concentration

between males and females, While bucked the results of the Kadhim (2008) study, which showed a significant difference in the concentration of urea and creatinine between males and females.

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