

The Effect of Some Biochemical Parameters on Patients with Renal Failure

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Abstract

This study was carried out for ninety patients with renal failure in Al karama hospital/ Baghdad compared with (fifty) healthy as control group. To determine hemaglobulin PCV, and serum urea, glucose, albumin, potassium, glutamic pyruvic transminase (GPT) and glutamic oxaloacetic transminase (GOT) were measure for both group. The patients had known from its disease on based history and clinical examination. This study showed elevated in significant difference of mean value ($p < 0.01$) at all level serum (Na^+ , K^+) concentration, albumin, urea and glutamic pyruvic transminase (GPT) between patients group and healthy control. the result also appeared no significant ($p < 0.05$) in level of glutamic oxaloacetic transminase GOT between them.

Abbreviations

Na: Sodium, K: Potassium, RF: Renal failure, CRF: Chronic renal failure, mg/dl: milligram/deciliter, mg/l: milligram/ liter, NIH : national institutes health, NS: not significant, S: significant, SD: stander deviation GOT: glutamic oxaloacetic transminase , GPT: glutamic pyruvic transminase.

تأثير بعض المتغيرات الكيموحياتية على مرضى الفشل الكلوي
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المخلص

تم تنفيذ الدراسة على (90) مريض يعاني من الفشل الكلوي في مستشفى الكرامة/ بغداد مقارنة (50) اشخاص اصحاء كمجموعة ضابطة لتحديد (Gpt) glutamic pyruvic transminase , , potassium , albumin , و (Got) glutamic oxaloacetic transminase لقياسها لكلا المجموعتين , تم التعرف على المرض على اساس تاريخ المريض و الفحوصات السريرية. اظهرت الدراسة ارتفاع بالفارق المعنوي ($p < 0.01$) في قيمة المتوسط لكل تركيز مستوى (Na^+) , (K^+) , (GPT) glutamic pyruvic transminase , albumin, urea, بين مرضى الفشل الكلوي والمجموعة الضابطة , وايضاً اظهرت النتائج عدم وجود فارق معنوي ($p < 0.05$) في مستوى (GOT) glutami oxaloacetic transaminase بينهم .

1.Introduction

When the kidneys are unable to remove the body metabolic wastes or proceed their regulatory function, the renal failure outcome [1,2,3]. The renal disease may lead to one of its complications such as anemia [4,5].

Albumin is extreme copious plasma protein then is generated at liver and compose great ratio of whole plasmaprotein. The sixty percent of plasma protein is usual comprise in human then firstly occur composition via parenchymal cells of liver exclude at early life of embryo, while it is synthesized largely by the yolk sac [6].

Incidence anemia often consider complexity of renal disease in chronic stage in order that contributory erythropoietin during procedure from the production of red blood cells, the reproduction is normal through renal because harm in the nephron at chronic stage of disease then the count of red blood cells decrease there [7].

Treat urea as organic component which play necessary function at metabolism compounds which containing nitrogen [8]. Biochemical test plays a great part in exact diagnosis and for estimate risk and select therapy that improves clinical result. The concentration of urea in the blood builds on a balance between its output from exogenous protein and it's secreted by the kidney. Because numerous factors may affect the urea level while the GFR residue constant [9]. Creatinine is extracted in the blood via a filtration out of renal glomeruli then excreted at relatively constant rate into the urine [10].

In muscle created creatinine by changes non – enzymatic. During the methylation of guanidine amino acetic acid liver has serious function and association with creatinine [11]. Filtered freely of creatinine at the glomerular and is not re-absorbed by the tubules.

However, a small value of creatinine is excreted by the kidney tubules at rise serum concentration [12].

Aim of study: to estimate biochemical test serum (Na⁺,K⁺) concentration , and level serum GOT,GPT, albumin , urea in the patient with renal failure and healthy person.

2. Patients and Methods

This study obtained from (90) patients whose renal failure in Al-Karama hospital with compare with (50) healthy human were nearly resemble to the patients group for each patient and controls venous blood sample get to determine hematological by hematocrit and some biochemical

test by biolizer/300 (automation). The data analysis by T-test to test association variable (spss) version (24) was used significant result was considered when $p\text{-value} \leq 0.05$.

3. Results and Discussions

The results shown in Table1, with highly significant difference ($P < 0.01$) in serum Na^+ concentration between the patient and healthy that study disagreement with Al-Hisnawi, R.A & Salih, H [14], who appear low in serum Na^+ concentration between patient with CRF and normal human without statistically significant decrease as a result reduce Na^+ intake and humoral natriuretic factor in CKD which help to highly sodium excretion and maintain normal balance [14] While K^+ concentration with highly significant ($P < 0.01$) in patient with renal failure this result agreement with [13]. The hyperkalemia is believing the result from the failure to follow dietary potassium limitation and ingestion of medication that contain potassium or from endogenous release of potassium as in case of trauma or infection [14].

Table 1: Comparison between groups (patients & controls) with items (K, Na).

Biochemical Parameter	Patients Mean \pm Std N= 90	Control Mean \pm Std N=50	P.V.	C.S.
K	6.05 \pm 1.03	5.49 \pm 1.06	0.002	(HS) $p < 0.01$
Na	129.34 \pm 6.30	137.41 \pm 18.97	0.000	(HS) $p < 0.01$

The results in Table 2, indicate that were significant difference were raised levels of albumin, urea, GPT in the patient with CRF ($p < 0.01$) as compare with healthy human this study agreement with [15]. While in Table 3, appeared no significant difference of level GOT at patients with CRF ($p < 0.05$) as compare with healthy person this result disagreement in reference above its.

Table 2: Comparison between groups (patients & controls) with items (albumin, urea).

Biochemical Parameter	Patients Mean \pm Std N= 90	Control Mean \pm Std N=50	P.V.	C.S.
Albumin	5.82 \pm 0.60	40.08 \pm 0.76	0.000	(HS) $p < 0.01$
Urea	165.03 \pm 54.79	30.68 \pm 6.20	0.000	(HS) $p < 0.01$

Table 3: Comparisons between groups (patients & controls) with items (GOT, GPT).

Biochemical Parameter	Patients Mean± Std N= 90	Control Mean± Std N=50	P.V.	C.S.
GOT	17.92±7.78	16.25±6.21	.379	(NS) p<0.05
GPT	59.60±11.04	15.85±8.46	.000	(HS) p<0.01

4. Conclusions

- 1- Significant difference of mean value ($p < 0.01$) is elevated at all level serum (Na^+ , K^+) concentration, albumin, urea and glutamic pyruvic transaminase (GPT)
- 2- Highly significant ($p < 0.01$) in level of glutamic pyruvic transaminase (GPT) in patients with no significant ($p < 0.05$) in level of glutamic oxaloacetic transaminase GOT between them.

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