Short Communication

Detection level of urea, sugar, creatinine and hematology in patients of diabetic mellitus type II

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Abstract

This work was applied on 65 Diabetes mellitus type II patients admitted to the Mergane Hospetale and 40 apparently health controls with age range (30-60 years),collected blood sample from patients. The result parameters showing that there is a significantly increased (p< 0.05) in sugar (180.22) compared to control in group (80.543) in age 61-70 year while there is a significantly increased (p< 0.05) in urea (39.14) compared to control in group 51-60 years appears 31.55. This study aims at evaluating the parameters of the levels of PCV, WBC,HB were determined. The parameters showing that there is a significantly increased (p< 0.05) in WBC in Diabetes mellitus patients (10231) compared to control group (5500) and where as HB and PCV levels decreases in their value specially with age between (41-50). The aim of our study is to measure serum urea and creatinine levels in diabetes and control and to establish relationship of blood sugar level with urea and creatinine levels. The study concluded that femal are more susceptible to infection with Diabetes mellitus than male and chronisity of the disease is directly associated with age increase.

Keywords: Diabetes mellitus, sugar, urea, creatin, PCV, WBC and Hb.

INTRODUCTION

Diabetes mellitus is a disorder that affects the body's ability to make or use insulin. The pancreas is produce Insulin hormone that helps transport glucose (blood sugar) from the bloodstream into the cells so they can break it down and use it for fuel. Human cannot live without insulin (American Diabetes Association (2007). Diabetes results in abnormal levels of glucose in the blood stream. This can cause severe short-term and long term consequences ranging from brain damage to amputations and heart disease (Kumar and Clark, 2002). Blood sugar enters cells via the action of insulin, which is a hormone produced by the beta cells of the pancreas. Factors that contribute to hyperglycemia include reduced insulin secretion, decreased blood sugar (glucose) usage by the body, or increased glucose production (American Diabetes Association (2007). **Type 2 diabetes**: disease of adult onset, which may originate from insulin resistance and relative insulin deficiency or from a secretory defect. This is a disease, which appears to have a very strong genetic predisposition and is caused by a combination of inadequate insulin secretion and an insensitivity of the body tissues to insulin so leaving patients with this condition relatively deficient in insulin. (American Diabetes Association 2007; Kumar and Clark, 2002)

MATERIALS AND METHODS

A. Patients

A total of 65 Diabetes mellitus patients consisting of 40 health controls were involved in this study. Their age range was from (9–60) years. Case information was taken for each patient include; name, sex, age, residency, duration of infection, and duration of therapy. All Diabetes mellitus cases were clinically diagnosed by a specialist clinician. Those patients were admitted to the Mergane Hospetale.

B. Control

A total of 25 apparently healthy subjects were involved as

Table 1. Concentration of Sugar, Urea, and Createn level in Controls and Diabetes mellitus

Age	Groups	Blood Suger M ± SD	Urea M ± SD	Serum Creatinine M± SD
31-40	patient	178.55±58.33	38.12±12.55	*0.96±0.44
	control	82.29±12.47	30.77±8.02	0.77±o.22
41-50	patient	176.53±55.22	37.32±13.3	*0.85±0.32
	control	80.23±11.33	31.22±7.03	0.69±0.33
51-60	patient	160.44±45.32	39.14±10.55	0.99±0.34
	control	81.55±12.32	31.55±6.o5	0.66±0.54
61-70	patient	180.22±50.23	38.33±11.55	0.89±0.34
		80.543±11.55	31.55±7.03	0.67±0.27

*there is significance differences of p>0.05

Table 2. Some hematological parameter in patient with Diabetes mellitus and Controls

Age years	Groups	HB M ± SD	PCV M ± SD	WBC M ± SD
31-40	Patient	*13.194±*0.267*	*38.841±0.786	9.053±o.950
	Control	12.505P±0.253	39.682±0.933	5.132P±0.418
41-50	Patient	12.717±0.304	*43.617±0.619	9.951±1.323
	Control	14.642±0.271	42.264±1.758	5.053±0.323
51-60	Patient	*13.105±0.167	*43.029±1.026	10.231±0.322
	Control	13.558±0.162	43.011±0.032	5.500±0.543
61-70	Patient	*13.662±0.286	45.264±0.622	9.552±0.953
	Control	14.182±0.675	43.523±0.632	4.530±0.867

*there is significance differences of p>0.05

controls group. The age range of controls was matched to the patients (30–70) years.

C. Blood samples

Three ml of blood were collected by vein puncture into two sterile test tubes, in one of them 2 ml of blood were put and left for (Kumar and Clark, 2002; Wu et al., 2003; Trinder, 1969) hours, and using it in serological tests and determination of sugar, createn (Wu et al., 2003).

D. Level of urea, creatinine and blood glucose

The main variables under study were urea, creatinine and blood glucose levels.
Estimation of serum glucose was done by glucoseoxidase and peroxidase method (Trinder, 1969). Similarly serum urea was estimated by Berthelot's method (Berthelot, 1859) while creatinine was estimated by alkaline Jaffe's Picrate method (Owen et al., 1954).

F. Statistical Analysis

T-test (p <0.05) were carried out according to (Niazi, 2004).

RESULTS AND DISCUSSION

B. Detection level of sugar, urease, createan

The mean (± S.D.) urea level in control group was found to be 31,55 whereas in patient it was found to be 38.33 in age 61-70 years. The mean (± S.D) blood sugar in control was found to be 80.543 whereas in patient it was found to be 180.22. inage 61-70 years The mean (±S.D.) creatinine levels in controls was found to be 0.76 ± 0.27 and in cases it was found to be 0.96 in age 31-40 years. (Table 1)

These findings reveal that there is a strong relationship of blood sugar level with urea level. As there is increase in blood sugar level and increase in urea level has been detected. This corroborates with the findings of (Owen et al., 1954) that hyperglycemia is one of the major causes of progressive renal damage.

An increase in urea level is seen when there is damage to the kidney or the kidney is not functioning properly. Increment of blood urea level with the increment of blood sugar level clearly indicates that the increase blood sugar level causes damage to the kidney. Research conducted by (Muragundla and Kanwaljitquercetin, 2004) had found that increase urea

and serum creatinine in diabetic rats indicates progressive renal damage.

C. Detection of hematological parameter in patient with Diabetes mellitus.

Levels of WBC increase compared with control and age prioued (51-60) showed highly increase in WBC value about 10.231 compared with control 5.500.where as HB and PCV levels decreases in their value specially with age   between (61-70) Table 2. Found reported that relationship between Wbc and Diabetes mellitus (Vozarova et al., 2002). This result of stimulation of immunity system and stimulation led to increase symbol of infelmantry like Wbc and cytokines because relationship of infelmantory and insulin and Human blood components formed a critical signal for any abnormalities resulted by invading of foreign agents or inflammation, these invaders led to changes in levels of blood parameters such as WBC, PCV, phagocytes percentage as a result of defense mechanism (Weyer et al., 2000)

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