Dedication

To my mother.

Who gave me care & love.

To my father.

Who was the sources of help fullness.

To my beloved country.

I dedicate this work

Salma

Acknowledgments

All great thanks are firstly to Allah.
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Abstract

A cross-sectional study conducted during the period from March 2011to May 2011, compared the plasma levels of total cholesterol, triglycerides, high and low density lipoproteins, urate and HbA1c of 52 Sudanese patients with type 2 diabetes mellitus as a test group and 30 apparently healthy (non-diabetic) as a control group. Participants in this study were from Jabir Abu Elez diabetic center in Khartoum state, Sudan. The plasma levels of total cholesterol, triglycerides, high and low density lipoproteins, and urate were measured using commercial reagent kits from Biosystem Company, whereas HbA1c was measured using a semi automated method.

The means of the plasma levels of total cholesterol, triglycerides, low density lipoproteins, urate, and HbA1c% of the diabetic group was significantly raised when compared to the control group.

The mean of the plasma levels of high density lipoproteins of the diabetic group was significantly reduced when compared to the control group.

In the diabetic group the plasma levels of total cholesterol, triglycerides, low density lipoproteins, urate and HbA1c show weak positive correlations with the duration of diabetes and the body mass index, whereas the plasma level of high density lipoproteins shows a negative correlation with the duration of diabetes and the body mass index.

From the results of this study, it is concluded that; diabetes mellitus is associated with high plasma levels of total cholesterol, triglycerides, low density lipoproteins, urate, and HbA1c and low plasma levels of HDL-c. In addition, there are weak correlations between the plasma levels of total cholesterol, triglycerides, high density lipoproteins, low density lipoproteins, urate and HbA1c with the duration of diabetes and body mass index.

مستخلص الدراسة

أجريت هذه الدراسة المقطعية خلال الفترة من مارس 2011 وحتى مايو 2011 حيث تم مقارنة مستويات الدهون في بلازما الدم (الكوليسترول, ثلاثي الجليسريد والبروتين الدهني ذو الكثافة العالية وكذلك ذو الكثافة المنخفضة) بالاضافة الى مستوى اليوريت والهيموجلوبين المجلكزبين 52 من مجموعة المرضى السودانيين المصابين بداء السكري من النوع الثاني و 30 من مجموعة الاصحاء. كل المشاركين في هذه الدراسة كانو من مركز جابر ابو العز بولاية الخرطوم. المحاليل المستعملة في الدراسة كانت كلها من شركة الانظمة الحيوية الالمانية في حين تم قياس نسبة الهيموجلوبين المجلكز باستخدام طريقة شبه آلية.

كان هنالك ارتفاع ذو دلالة احصائية معنوية في كل المستويات الوسطية للكولستيرول,الدهون الثلاثية و البروتين الدهني ذو الكثافية المنخفضة, اليوريت بالاضافة للهيموجلوبين المجلكز في مجموعة مرضى السكري مقارنة بالأصحاء.

كان هنالك انخفاض ذو دلالة احصائية معنوية في كل المستويات الوسطية للابروتين الدهني ذو الكثافية العالية في مجموعة مرضى السكري مقارنة بالأصحاء.

عند مقارنة مستويات الدهون المختلفة بالاضافة لليوريت والهيموجلوبين المجلكز في مجموعة الدراسة مع مدة الاصابة بمرض السكري ومؤشر كتلة الجسم اظهر الكوليسترول, ثلاثي الجليسريد, البروتين الدهني ذو الكثافة المرتفعة والمنخفضة ,اليوريت بالاضافة للهيموجلوبين المجلكز علاقة ضعيفة جدا.

من نتائج هذه الدراسة: هنالك علا قة بين مرض السكري وارتفاع مستويات الكوليس ترول الكلي في البلازما ، الدهون الثلاثي ة ، والبروتين ات الدهني ة منخفض ة الكثاف ة ، الي وريت ، ونس بة الهيموجل وبين المجلك ز وانخف اض مس توى البروتين ات الدهني ة مرتفع ة الكثاف ة. بالإضافة إلى ذلك هنلك علا قة ضعيفة جدا بين مستويات الكوليسترول الكلي في البلازما والدهون الثلاثية والبروتينات الدهنية عالية الكثافة ، البروتينات الدهنية منخفضة الكثافة ، ونسبة الهيموجلوبين المجلكزواليوريت مع مدة مرض السكري ومؤشر كتلة الجسم.

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Abbreviations

ACTH	Adrenocorticotropic Hormone
CHD	Coronary Heart Disease
DM	Diabetes Mellitus
ECF	Extracellular Fluid
EDTA	Ethylene Diamine Tetra Acetic acid
FBS	Fasting Blood Sugar
FFA	Free Fatty Acids
GDM	Gestational Diabetes Mellitus
HbA1c	Glycosylated Hemoglobin
HDL	High Density Lipoprotein
IDDM	Insulin-dependent diabetes mellitus
IDL	Intermediate Density Lipoprotein
IVGTT	Intravenous Glucose Tolerance Test

LADA	Latent Autoimmune Diabetes of Adult
LDL	Low Density Lipoprotein
MODY	Maturity-Onset Diabetes of the Young
NIDDM	Non-Insulin-Dependent Diabetes Mellitus
OGTT	Oral Glucose Tolerance Test
POD	Peroxidase
TD	Test Device
2hPPBS	Two- Hour Post Prandial Blood Sugar
VLDL	Very Low Density Lipoprotein
WHO	World Health Organization

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