

Dedication

To

My parents

teachers,

friends,

And to my colleagues

I dedicate this work

Abeer

Acknowledgements

Firstly I thank Allah for blessing me. Then I would like to present my deeply thanks to my supervisor Dr. Bader Eldien Hassan Elabid for his guidance, helpful suggestions, and his precious advice as well as continuous assistance through the whole research.

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Abstract

A cross-sectional study conducted during the period from January 2011 to June 2011, compared the plasma levels of total cholesterol, triglycerides, high and low density lipoproteins of 40 Sudanese patients with type 1 diabetes mellitus as a test group and 30 apparently healthy (non-diabetic) as a control group. Participants in this study were from Omdurman Pediatric hospital in Khartoum state, Sudan. The plasma levels of total cholesterol, triglycerides, and high and low density lipoproteins were measured using commercial reagent kits and a spectrophotometer from Biosystem Company.

The means of the plasma levels of total cholesterol, triglycerides, and low density lipoproteins of the diabetic group significantly raised when compared to the control group. ($p \leq 0.05$)

The mean of the plasma levels of high density lipoproteins of the diabetic group was significantly reduced when compared to the control group. ($p \leq 0.05$)

In the diabetic group the plasma levels of total cholesterol, triglycerides, and low density lipoproteins shows weak positive correlation with the duration of diabetes, whereas the plasma levels of high density lipoproteins shows a negative correlation with the duration of diabetes.

From the results of this study, it is concluded that; diabetes mellitus type 1 is associated with high levels of total cholesterol, triglycerides, and low density lipoproteins and low plasma levels of high density lipoproteins.

مستخلص الدراسة

اجريت هذه الدراسة المقطعية خلال الفترة من يناير 2011 و حتى يوليو 2011 حيث تم مقارنة مستويات الدهون فى بلازما الدم (الكوليستيرول، ثلاثى الجليسريد، البروتين الدهنى ذو الكثافة العالية وكذلك البروتين الدهنى ذو الكثافة المنخفضة) بين 40 من مجموعة المرضى السودانيين المصابين بداء السكرى من النوع الاول و 30 من مجموعة الصحاء. كل المشاركين فى هذه الدراسة كانوا من مستشفى ام درمان للأطفال بولاية الخرطوم، السودان. جهاز التحليل و المحاليل المستخدمة فى الدراسة كانت كلها من شركة الانظمة الحيوية الالمانية.

كان هنالك ارتفاع ذو دلالة احصائية معنوية في كل المستويات الوسطية للكوليسترول، الدهون الثلاثية و البروتين الدهنى ذو الكثافة المنخفضة، في مجموعة مرضى السكري مقارنة بالصحاء. بينما كان هنالك انخفاض ذو دلالة احصائية معنوية في كل المستوى الوسطي للبروتين الدهنى ذو الكثافة العالية، لدي مجموعة مرضى السكري مقارنة بالصحاء.

بالأضافة الى ذلك هنالك علاقات ايجابية بين مستويات الكوليسترول الكلي في البلازما، الدهون الثلاثية، والبروتينات الدهنية منخفضة الكثافة مع مدة مرض السكرى. بينما مستويات البروتين الدهنى ذو الكثافة العالية لها علاقة سالبة مع مدة المرض.

تخلص هذه الدراسة الى ان مرضي السكرى من النوع الاول يكون مصحوبا بزيادة فى مستويات الكوليسترول الكلى، الدهون الثلاثية و البروتينات الدهنية منخفضة الكثافة مع انخفاض فى مستوى البروتين الدهنى ذو الكثاف العالية.

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Abbreviations

| | |
|-------|---|
| CHD | Coronary Heart Disease |
| DM | Diabetes Mellitus |
| GDM | Gestational Diabetes Mellitus |
| GFR | Glomerular Filtration Rate |
| HbA1c | Glycated Hemoglobin |
| HDL-c | High Density Lipoprotein Cholesterol |
| IDDM | Insulin-dependant diabetes mellitus |
| LDL-c | Low Density Lipoprotein Cholesterol |
| NCEP | National Cholesterol Education Program |
| NIDDM | Non-insulin dependant diabetes mellitus |
| OGTT | Oral Glucose Tolerance Test |
| TG | Triglyceride |
| T1DM | Type 1 diabetes mellitus |
| VLDL | Very Low Density Lipoprotein |

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