بِسْمِ اللّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

أَلَمْ تَرَوْا أَنَّ اللَّهَ سَخَّرَ لَكُمْ مَا فِي السَّمَوَاتِ وَمَا فِي الْأَرْضِ وَأَسْبَغَ عَلَيْكُمْ نِعَمَهُ ظَاهِرَةً وَبَاطِنَةً وَمِنَ النَّاسِ مَنْ يُجَادِلُ فِي اللَّهِ بِغَيْرِ عِلْمٍ وَلَا هُدًى وَلَا كِتَابٍ مُنِيرٍ

صدق الله العظيم

سورة لقمان الآية 20

Dedication

This dissertation is dedicated to my parents who have given me the opportunity of an education from the best institutions and support throughout my life..

To my best friends whom always help me and believed that I could do it.

To my Village ***(Al gemaab)*** *which was our first home and it will still have this value in my heart for ever.*

Finally to my wife and childrens whom always stood by me and dealt with all of my absence from many family occasions with a smile.

fowzi

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Abstract

This analytical case control study conducted in Jabber Abu AI-iz Diabetic health center and Saad Rashwan Medical center during the period from June to February 2014, aimed to evaluate serum levels of zinc and magnesium among Sudanese patients with type II Diabetes mellitus. Sixty three samples were taken and compare with fourty five apparently healthy volunteer as a control group. Participants age ranged between 35-70 years old. Zn was assessed using standard biochemical technique , glucose and Mg were examined using spectrophotometric technique. Data was analyzed by SPSS version 15.

The mean serum level of zinc (mg/L) in test and control group (0.457 ± 0.11) (0.496 ± 0.07) (P- value= 0.047), Mg (1.943 ± 0.28) (2.291 ± 0.27) (P value= 0.000) and glucose (181 ± 84.4) (86 ± 12.7) (P value= 0.000) respectively.

The level of Mg, Zn and glucose were significantly difference in test group as compared to control group (P value $^{<}$0.05).

In diabetic group there was no correlation between zinc ,Magnesium and glucose with duration of disease ($p > 0.05$). There was weak negative correlation between glucose and Zinc ($r = -0.229$,P-value =0.017) and also glucose with Mg ($r = -0.309$,p value =0.001).

Age showed no correlation with zinc and glucose ($P<0.001$),but weak negative correlation with magnesium ($r= -0.145$,p-value =0.134).

This study conclued that ,the levels of zinc and magnetism are differentially changed in the studied groups ,they decrease in diabetic patients with type II diabetes mellitus

المستخلص

أجريت هذه الدراسة التحليلية في مركز جابر ابو العز لمرضى السكري ومركز طبي سعد رشوان في الفترة من يونيو 2013 الي فبراير 2014 والتي هدفت إلي تقويم مستويات الزنك والماغنسيوم لدى المرضى المصابين بداء السكر النوع الثاني، أخذت 63 عينة من المرضى وقورنت موستوياتها مع مستويات 45 عينة أصحاء كمجموعة ضابطة و تتراوح اعمارالمشاركين في الدراسة بين 35 – 70 سنة.

تم تقدير مستويات الزنك باستخدام التقنيات الكيموحيوية القياسية ومستويات الجلكوز والماغنسيوم باستخدام تقنية القياس الضوئي للالوان، وتم تحليل البيانات باستخدام برنامج الحزمة الاحصائية للعلوم الاجتماعية النسخة 15.

وجد أن مستوي الزنك في المجموعة المختبرة والمجموعة الضابطة (0.457 ±0.11) (0.469 ±0.07) بقيمة معنوية 0.047 ،الماغنسيوم(1.943±0.28) (2.291±0.27) بقيمة معنوية 0.000 والجلكوز (181±84.4) (86± 12.7) بقيمة معنوية 0.000 على التوالي مع وجود اختلاف ذو دلالة معنوية في مستويات الزنك،الماغنسيوم والجلكوز بين المجموعة المختبرة والمجموعة الضابطة.

لاتوجد علاقة ذات دلالة احصائية بين مستويات الزنك،الماغنسيوم والجلكوز ومدة المرض في المجموعة المختبرة. توجد علاقة عكسية ضعيفة بين الجلكوز و مستويات الزنك و الماغنسيوم ، لاتوجد علاقة بين العمر و مستويات الزنك والجلكوز ، بينما توجد علاقة عكسية ضعيفة بين العمر و مستويات الماغنسيوم.

LIST OF ABBREVIATIONS

AAS	Atomic Absorption Spectrophotometry
CA	Coronary Artery Disease
D	Diabetes Mellitus
DM	Superoxide dismutase
SOD	High Density Lipoprotein
HDL	Insulin Dependent Diabetes Mellitus
IDDM	Low Density Lipoprotein
LDL	Liter
L	Milligram
mg	Millimeter
ml	Non Insulin Dependent Diabetes Mellitus
NIDDM	Nanometer
nm	Probability
P-value	Pearson's correlation coefficients
r	Reactive Oxygen Species
ROS	Standard Deviation
SD	Super Oxide Dismutase
SOD	World Health Organization
WHO	Zinc
Zn	Magnesium
Mg	Extra cellular fluid
ECF	Very low density lipoprotein
VLDL	Carbohydrate
CHO	

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