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BIOCHEMICAL STUDIES ON THE RELATION OF SOME HORMONES WITH BLOOD GLUCOSE LEVEL

M.Sc. Thesis
In
Agric. Sci. (Agricultural Biochemistry)

By

DINA BELAL ABD ELRHEIM

B.Sc. Agric. Sci. (Agricultrural Biochemistry), Fac. Agric., Cairo Univ., 2003
Diploma Agric. Sci. (Agricultural Biochemistry), Fac. Agric., Cairo Univ., 2003

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دراسات كيميائيه حيويه على علاقة بعض الهرمونات بمستوى سكر الدم

رسالة مقدمة من

دينا بلال عبد الرحيم
بكالوريوس فى العلوم الزراعية (كيمياء حيوية زراعية)- كلية الزراعة – جامعة القاهرة , ٢٠٠٣
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للحصول على درجة

الماجستير

فى

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(كيمياء حيوية زراعية)

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DEDICATION

I dedicate this work to whom my heart felt thanks; to my mother ***Faiza*** *and my cousin* ***Mohamed*** *for their patience and help, as well as to my family, my sister and my brothers for all the support they lovely offered along the period of my post graduation.*

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ABSTRACT

Seventy six blood samples were taken from 66 volunteers (38 male and 28 female) of type-2-diabetic patients and 10 samples from intact subjects. Serum samples were collected from the lab. New Kasr El-Aini Teaching Hospital, Faculty of Medicine, Cairo University, Egypt. The age of patients and control varied from 35 to 50 years. Serum glucose, insulin and adiponectin levels were measured at fasting and postprandial states. Serum glucose and insulin levels in diabetic patients were higher than that to control subjects. Whilst the serum adiponectin levels in all type-2-diabetic patients (10.57-15.47µg/ml) were significantly lower than that of control patients (23.35µg/ml). Serum adiponectin level was significantly and negatively correlated with serum glucose. In male and female diabetic patients, the adiponectin levels varied from 13.45 to 15.05µg/ml and from 7.68 to 17.10µg/ml, respectively. A negatively significant correlation was present between serum insulin and adiponectin levels in male patients. At postprandial state, the glucose level was elevated with both insignificant increase in insulin level and decrease in adiponectin level. The data suggest that blood adiponectin must be determined and adjusted to the normal level by medicine before curing of type-2-diabetic mellitus.

Keywords: Type-2-diabetic patients, serum glucose, serum insulin, serum adiponectin, fast blood sugar and postprandial blood sugar.

اسم الطالبة : دينا بلال عبد الرحيم **الدرجة :** ماجستير

عنوان الرسالة : دراسات كيميائية حيوية على علاقة بعض الهرمونات بمستوى سكر الدم

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المستخلص العربى

تم سحب ٧٦ عينة دم قسمت الى ٦٦ عينة (٣٨ رجال و ٢٨ سيدات) لمرضى السكر من النوع الثانى و ١٠ عينات كنترول و تم اخذ هذه العينات من معمل المستشفى التعليمى الفرنساوى – القاهرة - مصر. ويتراوح عمر المرضى و الكنترول من ٣٥ الى ٥٠ سنة.و تم تقدير السيرم الجلوكوز و الانسولين و الاديبونكتين فى عينات السكر الصائم و الفاطر و لوحظ ارتفاع فى مستوى جلوكوز السيرم و الانسولين لمرض السكر مقارنة بحالات الكنترول. وكان مستوى الاديبونكتين فى كل مرضى السكر من النوع الثانى (١٠.٥٧ – ١٥.٤٧ميكروجرام / ملى) منخفض معنويا عن حالات الكنترول و التى كانت (٢٣.٣٥ ميكرو جرام / ملى). كان هناك علاقة معنوية عكسية مع مستوى الاديبونكنين للجلوكوز فى الرجال و السيدات مرضى السكر حيث كان هناك تنوع فى مستوى الاديبونكتين من ١٣.٤٥ الى ١٥.٠٥ ميكروجرام / ملى و من ٧.٦٨ الى ١٧.١٠ ميكروجرام / ملى على التوالى. و كان هناك علاقة معنوية عكسيه بين مستوى الانسولين و الاديبونكتين فى مرضى الرجال. بينما فى حالة السكر الفاطر كان مستوى الجلوكوز مرتفع مع زيادة غير معنوية فى مستوى الانسولين و منخفض فى مستوى الاديبونكتين. هذه البيانات تقترح ان مستوى الاديبونكتين يجب تحسينه و زيادته الى المستوى الطبيعى بواسطة الادوية قبل بدء علاج مرض السكر من النوع الثانى.

الكلمات الدالة: مرضى السكر من النوع الثانى ، سيرم الاديبونكتين، سيرم الانسولين، سيرم جلوكوز، السكر الصائم و السكر الفاطر.

CONTENTS

Page

INTRODUCTION **1**
REVIEW OF LITERATURE **3**
1. **Adipose tissue as an endocrine organ** **3**
2. **Adiponectin** **6**
3. **Adiponectin and obesity** **18**
4. **Adiponectin and insulin resistance** **37**
5. **Adiponectin and heart disease** **48**
6. **Adiponectin and inflammation** **60**
7. **Adiponectin and thiazolidinedione** **68**

MATERIALS AND METHODS **74**
1. Biological experiments **74**
2. Experimental design **74**
3. Experimental procedure **74**
4. Biochemical analyses **75**
a. Determination of serum glucose **75**
b. Determination of serum insulin hormone **78**
c. Determination of serum adiponectin hormone **81**
5. Statistical analysis **86**

RESULTS **88**
DISCUSSION **104**
SUMMARY **109**
REFFERENCES **114**
ARABIC SUMMARY .....

LIST OF FIGURES

No.	Title	Page
1.	Structure and domains of adiponectin.....	8
2.	The adiponectin protein consists of three structural domains.....	10
3.	Vicious cycle in obesity, which lead to adiponectin resistance, and insulin resistance.....	25
4.	Obesity induced alterations in the link between fat and the heart.....	29
5.	Adiponectin can activate AMPK and PPARα in the liver and skeletal muscle.....	45
6.	Process of atherosclerosis (plaque) formation.....	60
7.	Proposed interaction between primary up regulation of circulating CRP in proportion to body fatness and the inhibiting effect of insulin on IL-6 stimulated CRP secretion in nonobese insulin-sensitive subjects (*A*), nonobese early insulin-resistant subjects (e.g., young first degree relatives of subjects with type 2 diabetes) (*B*), obese insulin-sensitive subjects (*C*), and obese insulin-resistant subjects (*D*).....	65
8.	Scheme of experimental design.....	76
9.	Preparation of standard dilutions.....	84
10.	Flow chart of assay procedure.....	86

11. The relationship between serum glucose and adiponectin levels type-2- diabetic patients..... 92

12. Serum glucose and adiponectin relation in female type 2-diabetic patients..... 96

13. Serum glucose and adiponectin relation in normal and type-2-diabetic male and female patient 98

14. Relationship between glucose and adiponectin levels in normal, fasting and postprandial states of type-2-diabetic patients..... 100

15. The relationship between serum glucose and insulin levels in normal, fasting and postprandial states of male and female type-2-diabetic patients..... 100

16. The relationship between serum glucose and adiponectin levels in fasting and postprandial states of female type-2-diabetic patients..... 101

17. The relationship between serum glucose and adiponectin levels in fasting and postprandial states of male type-2-diabetic patients..... 103

18. The relationship between serum glucose and insulin levels in fasting and postprandial states of male type-2-diabetic patients..... 103

LIST OF TABLES

No.	Title	Page
1.	Pearson correlation between serum glucose, insulin and adiponectin levels in control subjects……	89
2.	Serum glucose, insulin and adiponectin levels in type-2-diabetic patients…….	90
3.	Pearson correlation between serum glucose, insulin and adiponectin in all type-2-diabetic patients.....	92
4.	Serum glucose, insulin and adiponectin levels in male type-2-diabetic patients……..……	93
5.	Pearson correlation between serum glucose, insulin and adiponectin in male type-2-diabetic patients…….……	94
6.	Serum glucose, insulin and adiponectin levels in female type-2-diabetic patients……..……	95
7.	Pearson correlation between serum glucose, insulin and adiponectin in female type-2-diabetic patients……..	96
8.	Pearson correlation between glucose, insulin and adiponectin in severe insulin resistance (300 – 400 mg glucose / dl) of female patients…….…….	97
9.	Pearson correlation between glucose, insulin and adiponectin in severe insulin resistance (400 – 500 mg glucose / dl)……	97
10.	Serum glucose, insulin and adiponectin levels in male and female of type-2- diabetic patients…….	98

11. Serum glucose, insulin and adiponectin levels in fasting and postprandial states of type-2-diabetic patients……. 99

12. Serum glucose, insulin and adiponectin levels in fasting and postprandial states of female type-2-diabetic patients……..……. 101

13. Serum glucose, insulin and adiponectin levels in fasting and postprandial states of male type-2-diabetic patients……...…… 102