شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

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التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

EVALUATION OF THE EFFECT OF GLYCEMIC CONTROL ON INSULIN-LIKE GROWTH FACTOR 1 AND GROWTH IN A SAMPLE OF PRE-PUBERTAL EGYPTIAN CHILDREN WITH TYPE 1 DIABETES MELLITUS

Thesis

Submitted for partial fulfillment of master degree in Endocrinology

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تقييم تأثير التحكم في نسبة السكر في الدم على عامل النمو الشبيه بالأنسولين-١ والنمو لدى عينة من الأطفال المصريين المصابين بمرض السكر من النوع الأول

رسالة مقدم توطئة للحصول
على درجة الماجستير في الغدد الصماء

مقدمة من
ألاء محمد محمد أبو ليلة
بكالوريوس الطب والجراحة ،٢٠١٢

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Dedication

To

my mother and father, who are a

constant source of inspiration and support

To

my husband, for believing in

me every step of the way

To

all my family and friends for

their continuous support.

To

my beautiful daughter Jude

Abstract

Background: Pre-Pubertal children with type 1 diabetes mellitus are shorter than their non- diabetic peers. we aimed to evaluate the role of HbA1c and IGF-1 in this phenomenon.

Methods: This study was a cross sectional study conducted on 80 pre-pubertal Egyptian children, divided into 30 Males and 30 Females with T1DM and 20 age matched controls (10 Males and 10 Females), the participants were recruited from the Outpatient Clinic of the Pediatric Department of Ain Shams University Hospitals and the National Institute of Diabetes and Endocrinology in Cairo, Egypt during the period from July 2018 to January 2019. Anthropometric measures including height and weight were obtained and used to calculate the height and weight percentiles using the CDC calculators. HbA1c as well as IGF-1 levels were tested.

Results: The mean age)years) of the participants was (9.781 ± 2.23) for male patients, (9.126 ± 2.199) for female patients and (8.437 ± 2.034) for controls. The height and weight percentiles (%) were found to be lower in the children with T1DM when compared to the disease-free controls with median values of 14.50 (IQR 27.98) in male patients, 17.95 (IQR 29.18) in female patients and 87 (IQR 20.58) in the controls. A negative correlation between serum IGF-1(ng/ml) and HbA1c (%) as well as height and weight percentiles (%), was found with (P = 0.014 ,0.009 and 0.05 respectively). Serum IGF-1 levels were also found to be significantly lower in patients (P < 0.001) with a mean value of (77.60 ± 69.377) in male patients and (64.0 ± 29.402) in female patients and (201.0 ± 102.798) in the disease-free controls. HbA1c (%) was also found to be negatively correlated with height percentile (P = 0.012).

Conclusion: Serum IGF-1 levels (ng/ml) as well as growth are negatively affected in pre-pubertal children with T1DM in relation to the glycemic control.

Contents

List of Abbreviations

ADA	American diabetes association
ANOVA	Analysis of variance
BGL	Basal glucose level
BMI	Body mass index
Carbs	Carbohydrates
CBC	Complete blood count
CDC	Centers for Disease Control and Prevention
DBP	Diastolic blood pressure
DKA	Diabetic ketoacidosis
DM	Diabetes mellitus
EDTA	Ethylenediaminetetraacetic acid
ELISA	Enzyme-linked immunosorbent assay
FPG	Fasting plasma glucose
GAD	Glutamic acid decarboxylase
GH	Growth hormone
GHD	Growth hormone deficiency
GHR	Growth hormone receptor
GHRH	Growth hormone releasing hormone
GLUT 4	Glucose transporter type 4
GTH	Genetic target height
HbA1c	Glycated haemoglobin
IA2	Islet tyrosine phosphatase 2

IAA	Antibodies to insulin
IFG	Impaired fasting glucose
IGF-1	Insulin-like growth factor -1
IGFBPs	Insulin-like growth factor binding proteins
IGT	Impaired glucose tolerance
IQR	Inter quartile range
ISPAD	International Society of Pediatrics and Adolescents
MUAC	Mid-upper-arm circumference
OGTT	Oral glucose Tolerance Test
PAD	Peripheral artery disease
S.D	Standard deviation
SBP	Systolic blood pressure
SDS	Standard deviation score
T1DM	Type 1 diabetes mellitus
T2DM	Type 2 diabetes mellitus
ZnT8.33	Zinc transporter 8

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