

الآية

قال تعالى:

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

﴿لَوْ أَنزَلْنَا هَذَا الْقُرْآنَ عَلَىٰ جَبَلٍ لَّرَأَيْتَهُ خَاشِعًا
مُّتَصَدِّعًا مِّنْ خَشْيَةِ اللَّهِ وَتِلْكَ الْأَمْثَالُ نَضْرِبُهَا
لِلنَّاسِ لَعَلَّهُمْ يَتَفَكَّرُونَ﴾

صدق الله العظيم
سورة الحشر، الآية (21)

Dedication

I would like to dedicate this study to my father, mother, sisters, brothers, friends and collages

Acknowledgements

.Firstly, all thanks to my God

Secondly, I would like to thank my supervisor Dr. Ghada Abdelrahman Elfadil for her guidance and .support

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.Thank you

Abstract

Background: Obesity is associated with abnormal sex steroids concentrations and it is related to the degree of obesity, this study was carried out to evaluate serum level of estradiol hormone in obese subjects

Material and methods: Fifty samples were collected from obese and overweight (male and female) in period between August to November 2017, chosen randomly in Khartoum State, and 50 apparently healthy individuals with normal BMI as control group, to assess the effect of obesity on estradiol hormone level. Estimation of serum estradiol level was done by using TOSOH, and results were analyzed using (SPSS) computer program

Result: The result of this study showed that the means concentration of estradiol hormone in obese subject was significantly increased compared to control (Mean \pm SD for cases versus control). (146.3 ± 108.6 versus 63.4 ± 52.8 , pg/ml, *P. value*=0.00), it showed that the means concentration of estradiol in obese male was significantly increased in compared to control male (68.2 ± 39.2 versus 36.2 ± 13.2 , pg/ml *P.value* =0.01), the means concentration of estradiol in obese female was significantly increased in compared to control (: 185.2 ± 111.7 versus 81.6 ± 61.2 , *P.value* =0.00). Also showed that mean concentration of estradiol in obese class 1 was significantly increased in compared to control (129.5 ± 116.6 versus

, $(61.7 \pm 53.6, \text{pg/ml}, P. \text{value}=0.001$

.Gender distribution among study group 40% was male and 60% was female

There was Strong positive correlation between BMI and estradiol in obese

.(male $(r=0.7, p=0.03$

Conclusion: It is concluded that: the serum level of
.estradiol hormone increases in both obese male and female

المستخلص

خلفية: السمنة متعلقة بتغيرات غير طبيعية في مستويات هرمونات الخصوبة الاسترويدية والتي لها علاقة حسب درجة السمنة. الهدف من الدراسة : تقويم مستوى هرمون الاستراديول لدى الأشخاص الذين يعانون من السمنة. الأدوات والطريقة : تم جمع عينة من الأشخاص الذين يعانون من السمنة و زيادة الوزن في الفترة من أغسطس حتى نوفمبر، أختيرت عشوائيا في ولاية الخرطوم. و 50 من الأفراد الأصحاء كمجموعة ضابطة، لتقييم تأثير السمنة على مستوى الاستراديول في مصل الدم.تم قياس مستوى هرمون الاستراديول باستخدام جهاز Tosoh، وتم تحليل النتائج باستخدام برنامج نظام الحزمة الإحصائية للعلوم الاجتماعية (SPSS)، برنامج الكمبيوتر.

النتيجة: أظهرت نتائج الدراسة ان متوسط تركيز هرمون الاستراديول مرتفع بشكل ملحوظ لدى الاشخاص الذين يعانون من السمنة مقارنة بمجموعة التحكم. "المتوسط \pm الإنحراف المعياري للمرضى مقارنة بمجموعة التحكم" (108.6 ± 146.3 مقابل 52.8 ± 63.4 ، وكان الاحتمال الاحصائي (0.00). كما أظهرت الدراسة أن متوسط تركيز الاستراديول لدى الرجال الذين يعانون من السمنة مرتفع بشكل ذو دلالة إحصائية بالمقارنة بمجموعة التحكم (68.2 ± 39.2 مقابل 36.2 ± 13.2 و كان الإحتمال الإحصائي (0.01). إضافة إلى ذلك أظهرت الدراسة أن متوسط تركيز الاستراديول لدى النساء الذين يعانون من السمنة مرتفع بشكل ذو دلالة إحصائية بالمقارنة بمجموعة التحكم (185.2 ± 111.7) مقابل 81.6 ± 61.2 و كان الإحتمال الإحصائي (0.00). كما اظهرت علاقة قوية ايجابية بين مؤشر كتلة الجسم والاستراديول ($r=0.7$ و قيمة $b=0.03$) ز

الخلاصة: خلصت الدراسة الى أن مستوى تركيز هرمون الاستراديول يزيد بشكل ملحوظ لدى الرجال والنساء الذين يعانون من السمنة.

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List of abbreviations

Full terms	Abbreviation
Androstenedion	A4
Androstenediol	A5
Androgen binding proteins	ABPs
Adrenocortico tropic hormone	ACTH
Anti-mullerian hormone	AMH
Activity regulated cytoskeleton	ARC
Alpha pyrrolidinovalerophenone	APVP
Body Mass Index	BMI
Congenital adrenal hyperplasia	CAH
Coronary Heart Disease	CHD
Corticotropin releasing hormone	CRH
Computed tomography	CT
Dehydroepiandrosterone	DHEA
dehydrotestosterone	DHT
Deoxy ribonucleic acid	DNA
Esteron	E1
Estradiol	E2
Esriol	E3
Estetrol	E4
Estrogen receptor	ER
Follicle stimulating hormone	FSH
Follicle stimulating hormone beta	FSH B
Gamma aminobutyric acid	GABA
Growth hormone	GH
Glucagon like receptor	GLP
Gonadotropin inhibitory hormone	GnIH
Gonadotropin releasing hormone	GnRH
Human chorionic gonadotropin	HCG
High density lipoprotein	HDL
Interstitial cell-stimulating hormone	ICSH

Insulin like growth factor	IGF
International units	IU
Kisspeptin	KP
Low density lipoprotein	LDL
Luteinizing hormone	LH
Monoamine oxidase	MAO
Melanocortin4 receptor	MC4R
Mullerian inhibiting hormone	MIH
Magnetic resonance imaging	MRI
Non alcoholic steatohepatitis	NASH
National center for biotechnology information	NCBI
National heart, lung and blood institute	NHLBI
Poly cystic ovarian syndrome	PCOS
Pelvic inflammatory disease	PID
Prolactin	PRL
Sex hormone binding globulin	SHBG
Type 2 diabetes mellitus	T2DM
Thyroid stimulating hormone	TSH
World Health Organization	WHO
Waist hip ratio	WHR