AJPS, 2011, Vol. 9, No.1

Evaluation of Lipid Profile as Indicators for Patients with Erectile Dysfunction

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الخلاصة:

يحظى المصابون بأمراض القلب وضعف الانتصاب برعاية طبية من قبل المختصين بهذا المجال، وهؤلاء المرضى لديهم الفرصة للتدخل المبكر والتأثير الايجابي على حالتهم السريرية. كما أن تشخيص عوامل المخاطرة وكذلك العلاج المكثف لأمراض القلب والأوعية الدموية يلعب دوراً أساسياً في تنظيم أمراض القلب والأوعية وضعف الانتصاب.

أجريت هذه الدراسة على (20) عشرون مريضاً عراقياً، وقد تم احتساب المواد الدهنية لديهم كل على حدة.

أظهرت النتائج ارتفاع معدلات المواد الدهنية لدى هؤلاء المرضى، وقد كانت كما يلي:

الكولستيرول 6.65 ± 0.27 ملي مول/لتر، ترايكلسرايد 5.93 ± 0.22 ملي مول/لتر، الكولستيرولLDL 4.424 ±0.28 ملي مول/لتر، VLDL 1.19 ± 0.18 ملي مول/لتر، وأخيراً HDL 1.04 ملي مول/لتر.

لقد سجلت النتائج المستحصلة على ترابط شديد بين ارتفاع مستوى الدهون في المصل وبين حالة ضعف الانتصاب، كما أن التقييم المختبري للدهون أظهر ترابطاً كبيراً مع المرضى الذين يعانون من ضعف الانتصاب.

Abstract:

Patients with cardiovascular diseases or erectile dysfunction initially present to primary care physicians, who have an opportunity to intervene early and favorably affect the clinical course of either condition. Recognition and aggressive treatment of cardiovascular disease risk factors has a major role in management of cardiovascular disease and erectile dysfunction.

Twenty Iraqi patients with age range of 45-50 years were considered in this study. The evaluation of erectile dysfunction was according to NIH Consensus Development Panel on Impotence Procedure. The NIH provided complete information about severity of erectile dysfunction by using its questionnaire. The lipid profile was performed individually. The obtained results predicted elevation of

all lipid profile parameters. The results were as follow: Cholesterol 6.65±0.27 mmol/L, triacylglyceral 5.93±0.22 mmol/L, LDL-cholesterol 4.424 ± 0.28 mmol/L, VLDL 1.19 ±0.18 mmol/L and HDL 1.04 mmol/L.

All collected results showed strong evidence between increased on serum lipids and erectile dysfunction and laboratory evaluation of lipid showed performed to patients with erectile dysfunction.

Key words
Lipid profile markers, erectile dysfunction, cardiovascular disease.

Introduction:

The term erectile dysfunction is applied to the patients who have traditionally been used to signify the inability of the male to attain and maintain erection of the penis sufficient to permit satisfactory sexual intercourse [1]. However, this use has often led to confusing and uninterruptible results in both clinical and basic science investigations [2]. Erectile dysfunction affects millions of men. Although for some men erectile function may not be the best or most important measure of sexual satisfaction, for many men erectile dysfunction creates mental stress that affects their interactions with Family and their associates [3]. There is a high prevalence of cardiovascular disease among patients seeking treatment for sexual dysfunction and the potential cardiac risks associated with sexual activity are well established [4]. Furthermore, recent epidemiological studies have underscored the association between cardiovascular and metabolic risk factors and sexual dysfunction in both men and women [5].

Erectile dysfunction is clearly a symptom of many conditions, and certain risk factors have been identified, some of which may be amenable to prevention strategies. Diabetes mellitus, hypogonadism in association with a number of endocrinologic conditions, hypertension, vascular disease, high levels of blood cholesterol, low levels of high density lipoprotein, drugs, neurogenic disorders [6,8].

The general medical history is important in identifying specific risk factors that may account for or contribute to the patient's erectile dysfunction. These include vascular risk factors such as hypertension, diabetes, smoking, coronary artery disease, peripheral vascular disorders, pelvic trauma or surgery, and blood lipid abnormalities [9,10]. The lipid profile involves obtaining a blood sample to determine your levels of total cholesterol, high density lipoprotein (HDL), low density lipoproteins (LDL), and triglycerides [11,12]. Hyperlipidemia has been implicated in the development of erectile dysfunction by several different mechanisms. Hyperlipidemia is associated with development of atherosclerotic blood vessel disease, thus contributing to vasculogenic impotence. Penile vascular changes have been noted in impotent patients with elevated serum lipids [13,14]. The

aim of this study was the evaluation of lipid profile for the erectile dysfunction patients since no similar study demonstrated with complete lipid profile parameters.

Material and Methods:

Determination of total cholesterol:

Cholesterol and it ester are release from lipoproteins by detergents, cholesterol ester hydrolyzed the ester and H_2O_2 is formed in the subsequent enzymatic oxidation of cholesterol by cholesterol oxidase. This method is linear up to 20.69 mmol/L [15].

Determination of triglyceride:

Serum triglyceride was determined by enzymatic colorimetric method. The principle of the method is based on the determination the liberated H2O2 from triglyceride molecules after hydrolysis. This method is linear up to 9.032 mmol/L[16].

Determination of high density lipoprotein-cholesterol (HDL):

The method used is based on precipitation with phosphortungestate - MgCl2 solution followed by enzymatic estimation of cholesterol in the supernatant the principle of the method depends of the chymicrons and lipoprotein, contain of VLDL and (low Density Lipoprotein) LDL contained in the sample which are precipitated by the addition of magnesium ions. The supernatant fluid obtained after centrifugation, contains high density lipoprotein from which cholesterol can be determined [17].

Determination of LDL-cholesterol , and VLDL lipoproteins

Low density lipoproteins cholesterol and very low density lipoprotein was calculated according to the Friedwald formula [17].

Subjects chosen for the experiment:

Twenty Iraqi male patients with variable levels of erectile dysfunction collected from Al-Ibn AL-Nafes teaching hospital during their routine visits. All patients considered in this study were diabetes, atherosclerosis or kidney diseases free. These patients with age range of 45-50 years I will suggest that you put this sentence at the beginning. Samples were collected in a period of one month under medical supervision. All collected patient were free from any other pathologic conditions. The evaluation of lipid profile was measured after 12 hours fasting. Serum sample were collected by venous puncture and the blood allowed to clot at room temperature for 30 minutes then centrifuged at 3000 rpm for 20 minutes. All patients were at fasting condition for more than 12 hours. Serum was removed with micro pipette and stored at -20 °C [18].

Results:

All evaluated lipid profile was compared with the well-known reference values retrieved from the WHO.

The mean level of total cholesterol in serum, the cholesterol concentration 6.65±0.27 mmol/L (Table-1) while, triglyceride concentration with mean equivalents to 5.93±0.22 mmol/L (Table-2). The average concentration of LDL-cholesterol was 4.424±0.28 mmol/L, VLDL concentration was 1.186± 0.19 mmol/L while estimated mean of HDL was 1.o4±0.16 mmol/L. (Table-3).

This obtained data in this study were compared to the collected results with laboratory reference values for each parameter. All statistical analysis were performed using Microsoft excel spread sheet and T test.

Discussion:

Clinical evaluation should include a thorough medical history, physical examination, and relevant laboratory tests [19]. The clinical evaluation for each patient in this study was considered. All other individuals with erectile dysfunction to be considered at high risk according to their lab findings [20].

The association between erectile dysfunction and cardiovascular disease should come as no surprise [21]. Penile erection is a vascular event that involves vasodilatation of the vasculature in the corpus cavernosum, a physiologic process that requires normal endothelial function. Injury to the endothelium can arise from a variety of risk factors that are associated with both cardiovascular disease and erectile dysfunction: hypertension, diabetes, smoking, lipid abnormalities, lack of physical activity, and obesity [22]. Hyperlipidemia is associated with development of atherosclerotic blood vessel disease, thus contributing to vasculogenic impotence. Penile vascular changes have been noted in impotent patients with elevated serum lipids [23]. All results predicted elevation of lipids which considered as main factors of circulatory system disease. Laboratory analysis predicted elevated level in all lipid profile analysis especially those associated with cholesterol.

Elevated LDL- cholesterol was found in all patients in this study. Several studies have shown that endothelial relaxation is impaired if the blood vessel wall is exposed to oxidized-LDL, and these free radicals can inactivate nitric oxide [24]. Some scientists experience in clinic has indicated that lowering LDL with hepatic hydroxymethylglutaryl coenzyme A reductase inhibitors alone moderated erectile dysfunction [25,26]. The high values of correlation predicated the effect of elevation of lipid profile on erection efficiency. The collected data showed effects of lipid on erection by its direct effects on circulation in the tunica albuginea.

In conclusion, elevation of serum lipid could be associated with achieving erectile dysfunction. Laboratory investigation with complete lipid profile should be

performed on patients with erectile dysfunction. Decrease of lipids in serum could restore erection and improve efficiency. The patients with abnormal lipid profile must follow a program to reduce serum lipid through control of diet and/or lipid reducing medications. Those measurements along with with laboratory monitoring and regular visit to their physician will eliminate the problem or improve erection.

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Group	Result
N	20
Mean	6.65
SD	0.27
Correlation	0.79
St. error of mean	0.22

Table-1: Cholesterol concentration in mmol/L

Group	Result
N	20
Mean	5.93
SD	0.22
Correlation	0.85
St. error of mean	0.32

Table-2: Triglyceride concentration in mmol/L

Group	Result
N	20
Mean	4.42
SD	0.28
Correlation	0.81
St. error of mean	0.12

Table-3: LDL-cholesterol concentration in mmol/L

Group	Result
N	20
Mean	0.19
SD	0.35
Correlation	0.85
St. error of mean	0.16

Table-4: VLDL concentration in mmol/L

Group	Result
N	20
Mean	1.04
SD	0.16
Correlation	0.75
St. error of mean	0.18

Table-5: HDL concentration in mmol/L