

Evaluation of Inhibin B and some Sexual Hormones Levels in men with Atherosclerosis Kirkuk city

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Introduction

Atherosclerosis is a chronic disease of the vessel wall that affects various vascular beds [1]. Atherosclerotic cardiovascular complications are the major causes of morbidity and mortality in type 2 diabetic patients. Cardiovascular disease is the main cause of premature mortality and two to six time's greater morbidity of T2D patients than of non-diabetic people. There are several mechanisms which could play a role in the pathogenesis of vascular complications and most of them are triggered by hyperglycemia and hyperglycemia-induced oxidative stress [2]. Atherosclerosis develops from low-density lipoprotein molecules (LDL) becoming oxidized (ldl-ox) by free radicals, particularly oxygen free radicals (ROS). When oxidized LDL comes in contact with an artery wall, a series of reactions occur to repair the damage to the artery wall caused by oxidized LDL [3]. inhibin is a dimeric glycoprotein composed of an α subunit covalently linked by disulphide bridges either to β A subunit (inhibin A) or to β B subunit (inhibin B) [4]. These protein subunits have a structural similarity to transforming growth factor β 1 (TGF β 1) [5]. The synthesis and secretion of biologically active inhibin A and B are confined to the reproductive system \bar{n} ovary, testis, placenta and fetoplacental unit [6]. The present study was aimed to

Abstract

The study designed to evaluate the inhibin B and sexual hormones levels with atherosclerosis. One hundred volunteers reselected at private laboratory between 4/2017 to 7/2017 in Kirkuk city (eighty volunteers with atherosclerosis and twenty apparently healthy subjects) were used. Then, volunteers divided to two groups. The first group was including apparently healthy and the second group was including patients (Wt:70-90 kg and age average 50-65 years). Laboratory diagnosis showed a decrease in inhibin B, Testosterone, Luteinizing hormone (LH) follicle stimulating hormone (FSH) in patient group. Moreover, all parameter levels showed significant ($P < 0.05$) decrease in all patients compare with all healthy subject group. It was concluded from this study that the atherosclerosis may led to decrease in an inhibin B and sexual hormones levels.

evaluate B and sexual hormones levels in men with atherosclerosis.

Materials & Methods

100 volunteers (male) were taken in this study. 80 with atherosclerosis and 20 apparently healthy, who randomly selected between May 2015 to March 2016 at Al-Dawoody private laboratory in Kirkuk city-Iraq. In this study, 100 volunteers were used and divided to two groups.

Sample Collections for biochemical tests

5 ml of venous blood samples were obtained from the volunteers. All blood samples were dispensed into test tubes for clotting. Then, sera were obtained after samples were centrifuged at 5000 round/10 min and kept frozen at - 20 °C until the time of assay [7].

Hormones determination

The determination serum Inhibin B by Enzyme Linked Immunosorbent Assay (ELISA) [Ray Biotech, Inc [8].

Testosterone

Serum testosterone concentration was determined according to the method of Wilke and Utley [9] using ELISA (Enzyme Linked Immuno Sorbant Assay).

Luteinizing hormone (LH) and follicle stimulating hormone (FSH)

The LH and FSH biotic kit diagnostic Automation, INC. is based on the principle of a solid phase

enzyme- linked immunosorbent assay which is the classical sandwich ELISA technique. Using spectrophotometrically technology to measured intensity of color at 450 nm. The concentration of LH or FSH is directly proportional to color intensity of test sample [10].

Results

Inhibin B, Testosterone, LH & FSH

Inhibin B levels show significant ($P < 0.05$) decrease in patients group (114.2 ± 12.8) compare with healthy group (129.7 ± 10.5) as shown in figure (1). Testosterone levels show significant ($P < 0.05$) decrease in patients group (3.2 ± 0.32) compare with healthy group (5.6 ± 0.4) as shown in figure (2). LH levels show significant ($P < 0.05$) decrease in patients group (5.2 ± 0.6) compare with healthy group (6.1 ± 1.02) as shown in figure (3). FSH levels show significant ($P < 0.05$) decrease in patients group (6.8 ± 0.82) compare with healthy group (8.7 ± 0.74) as shown in figure (4).

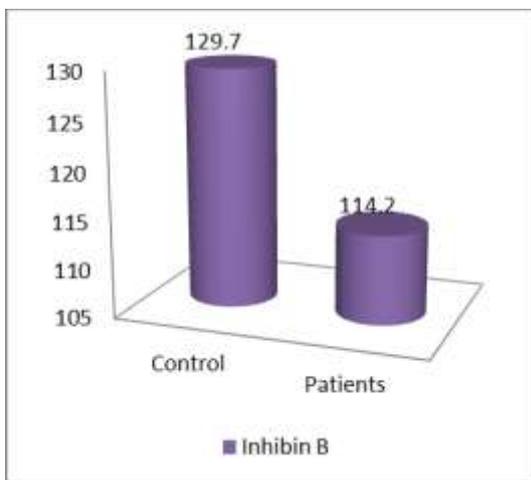


Figure (1): Inhibin B levels in both groups

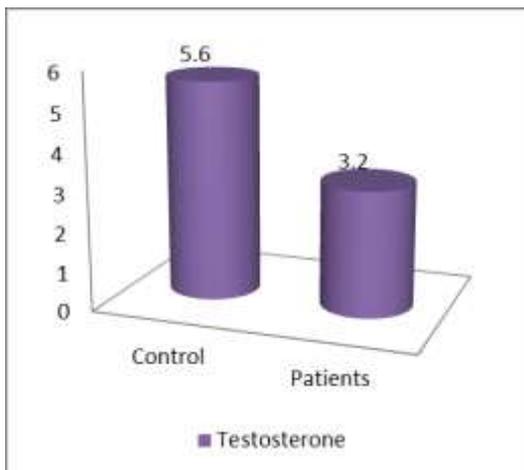


Figure (2): Testosterone levels in both groups

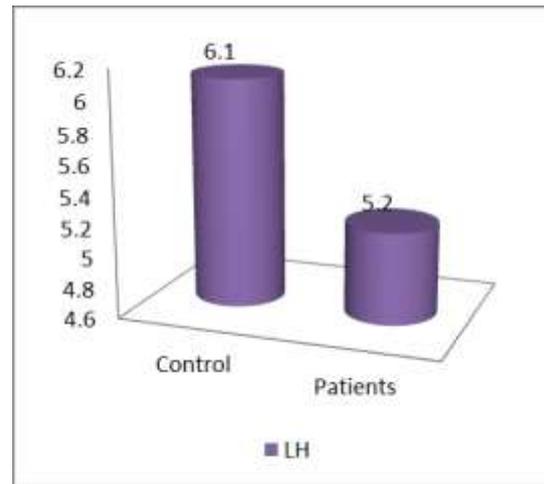


Figure (3): LH levels in both groups

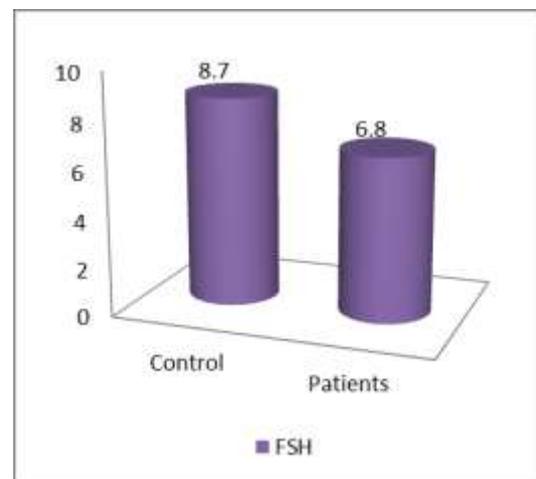


Figure (4): FSH levels in both groups

Discussion

Atherosclerosis, in fact, is a progressive disease characterized by the accumulation of cholesterol deposits in macrophages (foam cells) in large and medium arteries [12]. The present study show decreased in inhibin B, testosterone, LH and FSH levels in patients. These results were in agreement with Kocoglu et al. (2013) who referred that the inhibin B, testosterone, LH and FSH levels were decreased in patients with coronary artery disease compare with healthy subjects. They suggested that atherosclerosis is a very important factor for deterioration of testicular function and atherosclerosis can cause CAD and decreased inhibin-B levels in elderly male patients [13]. Other wise, There is a strong relation between testicular volume and inhibin-B levels reported in young male [14]. English (2000) referred that Men with coronary heart disease had a significantly lower total testosterone [15]. Also, the results of present study is in agreement with Turhan (2007) who found men with coronary heart disease that were under the age of 45 had total and free testosterone levels significantly lower than controls [16]. In study carried by Svartberg (2006) to find the correlation between atherosclerosis and testosterone levels, found low testosterone levels have been found

to be associated with atherosclerosis in men, that is in agreement with present study [17]. The findings of a study done by Regadera (1985) were similar to our study results. The study reported that testicular

alterations in elderly men were correlated with the degree of aortic atherosclerosis. In addition, their results suggested that systemic arteriosclerosis leads to a decline in testicular function with age [18].

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تقييم مستويات الانهيبين B والهرمونات الجنسية لدى المرضى المصابين بتصلب الشرايين

في مدينة كركوك

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الملخص

صممت الدراسة لتقييم مستويات الانهيبين B والهرمونات الجنسية في الرجال المصابين بتصلب الشرايين. استخدم مئة متطوع (80 متطوع مريض بتصلب الشرايين 20 اصحاء) قسم المتطوعين الى مجموعتين. المجموعة الاولى تضمن المتطوعين الاصحاء والمجموعة الثانية تضمن المرضى بتصلب الشرايين و(معدل العمر 50-65 سنة). التشخيص المختبري اظهر انخفاض في مستويات Inhibin B والتستوستيرون و LH و FSH في جميع المرضى. حيث اظهرت جميع مستويات القياسات انخفاض (P<0.05) معنوية في المرضى مقارنة مع مجموعة السيطرة. بينما. يستنتج من هذه الدراسة بان تصلب الشرايين ممكن ان يؤدي الى انخفاض مستويات الانهيبين B والهرمونات الجنسية.