

## Gonadal Dysfunction with Postprandial Hypertriglyceridemia is Risk Predictor of Cardiovascular Disease in Men with Type 2 Diabetes Mellitus

Zainab AA Al-Shamma<sup>1</sup> MSc, Yahya YZ Farid<sup>1</sup> PhD, Hashim M Hashim<sup>2</sup> MRCP

<sup>1</sup>Dept. of Chemistry & Biochemistry, <sup>2</sup>Dept. Medicine, College of Medicine, Al-Nahrain University, Baghdad - Iraq.

### Abstract

- Background** The association of type 2 diabetes mellitus and risk of cardiovascular disease is well documented. Insulin resistance is the hallmark feature of type 2 diabetes and there is evidence to suggest that testosterone is an important regulator of insulin sensitivity in men, with a role for testosterone in lipid metabolism and specially the triglyceride fraction.
- Objective** To emphasize the association of low level of total testosterone with that of the postprandial triglyceride in male patients' with type 2 diabetes mellitus.
- Methods** Forty two type 2 diabetes mellitus male patients and 42 healthy controls of age range between 30-60 years, during the period from December 2011 to June 2012. Postprandial venous blood used for random blood glucose, lipid profile, urea and creatinine measurement. Luteinizing hormone, follicle stimulating hormone, testosterone, and sex hormone binding globulin was done using Enzyme-Linked Immuno Sorbent Assay (Sandwich assay).
- Results** A negative correlation between testosterone, and postprandial triglyceride, in both type 2 diabetes mellitus and control groups with a significant difference in testosterone between the two groups. The sex hormone binding globulin was also correlated negatively with postprandial triglyceride in only the control group.
- Conclusion** Hypogonadism in male (decline in testosterone level) leads to increased postprandial hypertriglyceridemia, which could, both, be considered of predictors for cardiovascular disease risk factors in male patients with type2 diabetes mellitus.
- Key words** Postprandial triglycerides, type2 diabetes mellitus, testosterone.

### Introduction

Dyslipidemia caused by insulin resistance is characterized by hyper-triglyceridemia with low HDL-cholesterol (HDL-c), two important risk factors for the development of diabetes mellitus<sup>(1,2)</sup>. Testosterone was reported to have important metabolic actions in men, affecting body composition and exerting direct effects on insulin sensitivity and lipid metabolism<sup>(3,4)</sup>. Hypogonadism is either primary or secondary. Hypogonadism that accompanies

most chronic systemic diseases and aging is primary and is characterized by low testosterone levels and high gonadotropin with a significant association with insulin resistance and development of diabetes mellitus. The low level of sex hormone binding globulin (SHBG), which associates low testosterone concentration, has also been considered a risk predictor of Type 2 DM; prospective studies have shown that men with higher testosterone levels had a 42% lower risk of type 2 diabetes<sup>(5-9)</sup>. The Massachusetts