An apple shaped body or male type distribution of adipose tissue, is associated with high risk of coronary heart disease (CHD) than pear-shaped body or female-type distribution of body fat. This factor may be quantified by using the waist circumference (WC) [3].

Insulin resistance, which associates obesity, increases the activity of hormone sensitive lipase in adipose tissue resulting in increased level of circulating fatty acids. These fatty acids are carried to the liver to be converted to TG and cholesterol. The major components of the dyslipidemia that may associate obesity are increased TG and modified small dense LDL particles with decreased HDL and impairment of LDL-receptor (LDL-R) activity which contributes to delayed TG rich lipoprotein clearance [4]. These modified LDL are mostly taken up by macrophage scavenger receptors, rather than the normal LDL-R pathway, thus inducing athero-sclerosis and increasing the risk of cardiovascular disease [4,5].

The present study was designed to study the link between obesity, dyslipidemia and ox-LDL with the changes in sex hormones in the postmenopausal period.

Methods

Subjects

The study was carried out during the period from August 2008 till January 2009. It included 37 pre-menopausal women with age range of 18-43 years and 41 postmenopausal women with age range of 47-73 years. All women were attending AL-Kadhimya Teaching Hospital. They were, all, healthy with no previous illness or taking any drug which may interfere with any of the tests in this study.

All women of the study were subjected to anthropometric measurements including BMI and WC, and both groups of the study were subdivided according to BMI into 3 subgroups: normal (< 25 Kg/m^2), overweight (25-29.9 Kg/m^2) and obese (> 30 Kg/m^2).

Methods

Ten mls of blood were collected into a plain tube in the morning after 12 hour fast. The serum obtained after centrifugation of blood at 3200 rpm for 10 min. was separated and divided into small aliquots for measurement of serum E2, FSH, LH and Ox-LDL by ELISA technique. Serum lipids (TG, TC, and HDL-C) were determined by enzymatic spectrophotometric methods (Kits from BioMereux, France). The LDL-C was calculated according to Friedwald formula [6] and the atherogenic index (AI) is the ratio of LDL-C to HDL-C.

Results

In addition to the higher age in the postmenopausal women and the significant reduction in E2 and elevation in FSH and LH, there was also a significant rise in TG, TC and LDL-C with a significant reduction in HDL-C and a significantly higher atherogenic index, AI (Table 1).