



Effect of *Vitex agnus-castus* and *Salvia officinalis* Extracts on Serum Lipids in Postmenopausal Women: An Randomized Clinical Trial

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Abstract

Objectives: This study aimed to investigate the effect of *Vitex agnus-castus* (VAC), and *Salvia officinalis* extracts on serum lipids in postmenopausal women referred to the Bone Densitometry Center, Namazi Hospital, Shiraz, Iran.

Materials and Methods: This randomized clinical trial was conducted on 89 postmenopausal women in 2016 using random permuted blocks with a block size of 3 in the three groups, including the VAC group (3.2-4.8 mg/q8h), *S. officinalis* group (100 mg/q8h), and placebo group for three months. Women were finally compared in terms of low-density lipoprotein, triglycerides (TG), and high-density lipoprotein before and after the intervention. Data were analyzed using SPSS-16 software. Descriptive statistical tests and paired *t* test were used to compare the groups.

Results: A significant decrease in serum cholesterol, low-density lipoprotein, and triglycerides levels and also increase in mean serum high-density lipoprotein levels were observed in VAC and *S. officinalis* groups before and after the intervention ($P = 0.0001$). In comparison, no significant change was observed in serum level of any lipoproteins in the placebo group.

Conclusions: Considering the decrease in the level of cholesterol, low-density lipoprotein, triglycerides, and increased high-density lipoprotein after using VAC and *S. officinalis* in this study, these herbs can be proposed as blood lipid-lowering agents in postmenopausal women.

Keywords: *Vitex agnus-castus*, *Salvia officinalis*, Lipoproteins, LDL, HDL, Triglycerides, Lipids, Postmenopausal, Women

Introduction

Menopause is a sign of passing from fertility to infertility. In this period, symptoms such as hot flashes, night sweats, sleep disturbances, lack of concentration and memory loss, loss of bone mass, vaginal atrophy, increased risk of cardiovascular diseases, anxiety, and depression occur in the long term (1-4). Estrogen is involved in regulating serum lipid metabolism and breast cancer. The administration of estrogen on serum lipid is mainly expressed through its attachment to the estrogen receptor alpha isoform and occurs in most tissues (5). During menopause, lipid metabolism and blood pressure change due to decreased estrogen levels. In this period, the distribution of body lipid changes from the environmental distribution to the central allocation. Also, levels of total cholesterol, low-density lipoprotein (LDL), triglycerides (TG), lipoprotein (a), and high-density lipoprotein (HDL) are reduced. Moreover, metabolic syndrome, hypertension, abdominal obesity, insulin resistance, and dyslipidemia increase during menopause (6). Epidemiologic studies have shown that hormone replacement therapy or

estrogen plus progesterone therapy using conjugated estrogens/medroxyprogesterone in menopause women decrease menopausal symptoms, the risk of coronary artery disease and adiponectin concentrations in coronary heart disease (7-9). Considering the side effects of hormone therapy (10,10) and the use of complementary medicine in the treatment of women diseases (12-17), the main chemical properties of *Vitex agnus-castus* (VAC) phytoestrogens appear to guarantee cardiovascular health after menopause with the support of vascular nitric oxide activity, maintaining the vascular endothelial function, preventing atherosclerosis, and reducing cholesterol and TG levels (18). However, despite the many effects of VAC (19, 20), little is known about its impact on the liver's lipid metabolism and oxidation state, especially in postmenopausal women. Most studies have examined the effects of liver lipid metabolism on ovariectomized rats (21).

The VAC is native to Europe, the Mediterranean, and Asian countries. Two iridoid glycosides called genocide and combine obtained from its ripe and dried fruits containing

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