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Predictors of low-density lipoprotein cholesterol control in a sample of postmenopausal women

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Introduction: Menopause is a period in a woman's life characterized by a physiological decrease in female sex hormone levels. It is associated with increased cardiovascular risk due to the reduced protective role of sex hormones and increased levels of markers of systemic inflammation[1]. Change in hormone levels leads to change in lipid metabolism, sarcopenia and decrease in muscle tissue percentage what increases proinflammatory processes, lipid peroxidation and results in quicker development of atherosclerosis[2]. This study aimed to determine the effect of statin therapy on low-density lipoprotein cholesterol (LDL-C) levels, some anthropometric measures, and to examine whether anthropometric measures, smoking, and other specific values have predictive influence on achievement of LDL-C goals[3].

Patients and Methods: We treated 67 women with statins, adjusting doses in three controls to achieve target LDL-C levels. Laboratory parameters and anthropometric measures were assessed every four weeks until the end of the study to ensure achievement of target LDL-C levels. We included postmenopausal women who had not menstruated for more than one year and who were statin-naïve. Exclusion criteria included any other acute, proinflammatory disease that could influence results, such as acute inflammation and malignant diseases.

Results: After three months, LDL-C levels were significantly reduced compared with baseline ($p < 0.01$, Wilcoxon test). Body mass, body fat percentage, and hip circumference were also significantly reduced ($p = 0.001$, $p = 0.008$, and $p = 0.001$, respectively; Wilcoxon test). At the end of the survey, 36 patients (55%) achieved LDL goals according to recent ESC guidelines. To identify factors predicting good LDL control, we built a logistic regression model including statin dose, smoking duration, percentage of muscle tissue, and duration of menopause. The model was statistically significant ($x^2=30.46$, $p=<0.000$) and can differentiate patients who achieved expected LDL levels. Muscle mass percentage (OR=1,20, 95% CI 1.04 to 1.39) and therapy (OR=1.09, 95% CI 1.02 to 1.15) are positive predictors, and smoking duration was a negative predictor of good LDL control (OR=0.43, 95% CI 0.24 to 0.74). Duration of menopause didn't have any predictive influence (OR= 0.89, 95%CI 0.80 to 1.009).

Conclusion: The percentage of muscle mass tissue in a sample of postmenopausal women has a stronger predictive influence on LDL levels than statin therapy.

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