Abstract

Introduction: Familial Hypercholesterolemia is a common genetic disorder with high levels of LDL-C in the bloodstream and the high risk of early cardiovascular disease. There is limited information on factors related to the treatment outcomes of FH patients. The aim of our study was to evaluate factors such as medication, lipid profile, and blood cell counts associated with LDL-C goal achivement.

Methods: This cross-sectional study was performed with the participation of FH patients invited from the FH registry system. Complete blood tests were performed including LDL-C, HDL-C, TG, total cholesterol, MCV, PDW, RDW, NLR, ALT, AST, MCH, hematocrite and platelet count and measurement of height, weight, BMI, waist and hip circumferences of patients. Depending on the level of LDL-C, patients were divided into two groups of patients with levels of LDL-C> 100 and patients with LDL-C <100, and the predictor factors for achieving the LDL-C goal were examined.

Results: A total of 233 FH patients were studied. The univariate analysis and simple logistic regression showed that using lipid lowering therapy in men (OR: 10.155; 95% CI: 1.433–35.322; P=0.042) and in women (OR: 11.232; 95% CI: 1.394–29.593; P=0.039) was associated with higher odds of reaching the LDL-C target, family history of MI in men (OR= 1.587; CI: 1.106–3.144; P=0.026) and in women (OR: 0.286; 95% CI: 0.094–0.867; P=0.027) each unit increases in LDL-C levels in men (OR: 0.887; 95% CI: 0.807–0.974; P=0.012) and in women (OR: 0.894; 95% CI: 0.846–0.945; P<0.001), each unit increases in triglyceride levels in men (OR: 0.990; 95% CI: 0.982–0.998; P=0.011) and in women (OR: 0.990; 95% CI: 0.981–0.999; P=0.031), each unit increases in total cholesterol levels in men (OR: 0.958; 95% CI: 0.931–0.985; P=0.003) and in women (OR: 0.944; 95% CI: 0.919–0.969; P<0.011), each unit increases in hematocrit levels in men (OR: 0.865; 95% CI: 0.862–0.972; P=0.026) and in women (OR: 0.778; 95% CI: 0.641–0.943; P=0.011), and each unit increases in MCH levels in men (OR: 0.855; 95% CI: 0.722–0.978; P=0.043) and in women (OR: 1.838; 95% CI: 1.685–2.024; P=0.044), were associated with lower odds of reaching the LDL-C target.

Discussion: The use of lipid-lowering drugs increases the achievement of the LDL-C target. Family history of Myocardial Infarction, and each increase in hematocrit, MCH, LDL-C, triglyceride, and total cholesterol levels reduces the achievement of the LDL-C target. Identify predictors of LDL-C achievement such as LDL-C, total cholesterol, triglycerides, hematocrit, MCH, family history of Myocardial Infarction and use of lipid-lowering drugs are effective in identifying FH patients at higher risk, control their symptoms as soon as possible and success in

treating them. While factors such as RDW, PDW, MCV, NLR, ALT, AST, platelet count, height, weight, BMI, waist and hip circumferences are not related to achieving the LDL-C goal and they are not suitable to predict the optimal response of FH patients to treatment.

Keywords: Familial Hypercholesterolemia, LDL-C, LDL-C goal achievement, Biochemical factors, Clinical factors.