Keywords: Abnormal hemoglobins, Hemoglobin G-Waimanalo, Hemoglobin Fontainebleau

Anahtar Sözcükler: Anormal hemoglobinler, Hemoglobin G-Waimanalo, Hemoglobin Fontainebleau

Authorship Contributions

Concept: Duran Canatan, Design: Duran Canatan, Data Collection or Processing: Serpil Delibaş, Gülsüm Yazıcı, Vildan Çiftçi, Analysis or Interpretation: Türker Bilgen, İbrahim Keser, Gülsüm Yazıcı, Vildan Çiftçi, Literature Search: Duran Canatan, Türker Bilgen, Writing: Duran Canatan.

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Serum Lipids in Turkish Patients with β-Thalassemia Major and β-Thalassemia Minor

Türk β-Talasemi Majör ve β-Talasemi Minör Hastalarının Serum Lipidleri

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To the Editor,

It is well-known that β-thalassemia is associated with changes in plasma lipids and lipoproteins [1,2,3]. To our knowledge, no data are available on lipid profiles in Turkish β-thalassemia major (TM) and β-thalassemia trait (TT) patients together. The aim of this study was to evaluate lipid profiles in two groups of patients with β-TM and β-TT and to compare them with healthy controls. The study included a total of 311 subjects. Group 1 included 131 β-TM patients (mean age: 16.3±7.58 years). Group 2 included 68 β-TT patients (mean age: 7.25±4.43 years). Group 3 consisted of 112 age- and sex-matched healthy controls (mean age: 9±4.7 years). Serum ferritin level was 2487±1103 (range: 661-5745) ng/mL in Group 1. In comparing the correlation between ferritin and lipid parameters, while a significantly negative relationship was detected between ferritin and high-density lipoprotein cholesterol (HDL-C) (p=0.000, r=-0.602), a significantly positive relationship was detected between ferritin and triglyceride (TG) levels (p=0.02) in TM patients. Serum lipid profiles of the 3 groups are shown in Table 1.

Previous studies have shown total serum cholesterol, HDL-C, lower low-density lipoprotein cholesterol (LDL-C), and higher TG in β-TM patients compared to healthy controls [1,2,3]. In our study, we found lower serum total cholesterol, lower HDL-C, LDL-C, and higher TG in β-TM patients compared to healthy controls. The pathophysiology of hypocholesterolemia in thalassemia remains obscure, although several mechanisms have been proposed; plasma dilution due to anemia, increased cholesterol requirement associated with erythroid hyperplasia, macrophage system activation with cytokine release, and increased cholesterol uptake by the reticuloendothelial system [4,5]. Previous studies reported different variations in lipid profiles of β-TT patients [6,7]. In our study, we demonstrated

Table 1. Lipid profiles and their significance in patients with β-thalassemia major, patients with β-thalassemia trait, and controls.

	Group 1	Group 2	Group 3	p-values		
	β-TM (n=131)	β-TT (n=68)	Control (n=112)	Groups 1-2	Groups 1-3	Groups 2-3
T-Chol	118.5±30.6	145.6±27.6	154.3±31.7	0.00	0.00	NS
LDL-C	59.1±27.6	82.5±24.9	89.6±26.1	0.00	0.00	NS
HDL-C	34.4±11.2	45.7±12.2	45.5±11.1	0.00	0.00	NS
TG	121.8±50.8	82.9±34.6	97.8±52.4	0.00	0.00	NS

T-Chol: Total cholesterol, LDL-C: low-density lipoprotein cholesterol, HDL-C: high-density lipoprotein cholesterol, TG: triglyceride, β-TM: β-thalassemia major, β-TT: β-thalassemia trait, NS: non-significant.

similar lipid profiles in β-TT patients and healthy controls. Based on statistical insignificance, we considered that the effects of lipid profile on the development of atherosclerotic vessel disease were similar in both β-TT patients and the healthy control group. Serum iron and iron stores, expressed as elevated ferritin levels, have been implicated in coronary artery disease. Iron overload depletes the antioxidant and HDL-C levels. Lower HDL-C level is an important risk factor for development of coronary heart diseases [8]. We found significant relationships of serum ferritin levels with TG and HDL-C in β-TM patients. These results indicate that β-TM patients who need life-long red blood cell transfusions should receive chelation therapy not only for iron overload-induced congestive heart failure but also in order to prevent cardiovascular diseases resulting from lipid profile alterations.

In conclusion, lipid profiles of β-TM patients differed from those of β-TT patients and healthy controls. The present study demonstrates that lower levels of HDL-C in β-TM should be a reason for concern for better evaluation of the cardiovascular risk factors in β-TM. In order to reduce the effects of lipid metabolism on cardiovascular disorders, an effective chelating therapy is essential in TM patients.

Keywords: Thalassemia major, Thalassemia minor, Serum lipids

Anahtar Sözcükler: Talasemi majör, Talasemi minör, Serum lipidleri

Authorship Contributions

Concept: Yasemin Işık Balcı, Design: Yasemin Işık Balcı, Data Collection or Processing: Yasemin Işık Balcı, Şule Ünal, Fatma Gümrük, Analysis or Interpretation: Yasemin Işık Balcı, Şule Ünal, Literature Search: Yasemin Işık Balcı, Şule Ünal, Fatma Gümrük, Writing: Yasemin Işık Balcı.

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