Apolipoproteins A1, B, and other prognostic biochemical cardiovascular risk factors in patients with beta-thalassemia major.


Abstract

Objectives The occurrence of cardiac iron deposition is one of the late effect of iron over load which causes cardiovascular disease (CVD) in patients who are affected by beta-thalassemia major. Evaluation of some cardiovascular risk factors plays a crucial role in prediction and prevention of CVD. Subjects and methods This study consisted of 70 young adult subjects with beta-thalassemia major (beta-TM) (aged <30 years) and 71 age- and sex-matched healthy subjects as control group in the range of 20-30 years. Hematological and biochemical laboratory parameters including apolipoprotein (Apo)A1 and ApoB, oxidative stress biomarker pro-oxidant-antioxidant balance (PAB), homocysteine, serum high-sensitivity C-reactive protein (hs-CRP), and lipid profile were evaluated. Results ApoA1, ApoB, lipid profiles, and homocysteine were significantly decreased in patients group (P < 0.001); however, very low-density lipoprotein and also mean corpuscular hemoglobin concentration (P > 0.05) were different. Some elements included ferritin (P < 0.001), PAB (P < 0.001), and ApoB/apoA1 ratio (P < 0.05) statistically increased in patients, whereas hs-CRP (P > 0.05) was not significantly different in study groups. Exception of high-density lipoprotein (P > 0.05), other lipid profiles, and apoB had a negative meaningful correlation with PAB (P < 0.05). Likewise, apoA1, apoB, apoB/A1 ratio with apoB and homocysteine showed a strong correlation (P < 0.05). We did not find a slight correlation between apoB/A1 ratio in the company of oxidative stress marker PAB (r = -0.366; P = 0.086). We found a statistical correlation between apoB/A1 and homocysteine (P < 0.05). Discussion Higher level of some risk factors like PAB values, apoB/A1 ratio concentration, and lipid profiles is able to involve in the prognostic pathological consequences in patients with beta-thalassemia major. Even so, they contribute toward the gradual development of CVD.

KEYWORDS:

Apolipoprotein; Beta-thalassemia major; Cardiovascular disease; Oxidative stress