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## COMPARISON OF LEPTIN AND FERRITIN LEVELS IN BETA-THALASSEMIA MAJOR AND HEALTHY INDIVIDUALS

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### ABSTRACT

**Introduction:** Beta-thalassemia major is an inherited hematologic disorder that is characterized by decreased or lack in the synthesis of beta-hemoglobin sequence. An increase in ferritin leads to a decrease in leptin in healthy individuals.

This study aimed to compare leptin and ferritin levels in the patients with beta-thalassemia major and healthy individuals.

**Material and Methods:** This cross-sectional study was conducted in 2018-2019. The study participants were divided into two groups including 57 patients with beta-thalassemia major in the case group and 57 healthy volunteers in the control group. Leptin and ferritin levels were measured using the ELISA kit. The data were entered into SPSS 21 software and were compared and analyzed using the T-test.

**Results:** The mean leptin level in the healthy individuals and patients with beta-thalassemia major was  $10.17 \pm 8.29$  ng/ml and  $3.23 \pm 3.22$  ng/ml, respectively. The ferritin level in healthy individuals was  $99.14 \pm 90.5$  ng/ml compared to  $1233.456 \pm 0.701$  ng/ml in the patients with beta-thalassemia major.

**Conclusion:** In beta-thalassemia major patients, the leptin level was lower compared to healthy individuals. In addition, an increase in ferritin levels leads to a decrease in leptin levels in healthy individuals. However, this finding was not observed in patients with beta-thalassemia major.

**Keywords:** beta thalassemia major, leptin, ferritin, hematologic disorder, iron overload.

### INTRODUCTION

Beta thalassemia major ( $\beta$ -TM) is a hematologic disease caused by decreased synthesis of the beta-hemoglobin sequence (the main deficiency in the patients) [Thein S, 2013]. The decrease in the

synthesis of the beta-hemoglobin sequence causes a relative increase in the alpha sequence inside erythroid cells. As a result, abnormal molecule alpha 4 emerges which is unstable and precipitates

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