

Immunity level to diphtheria in beta thalassemia patients

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Abstract

Introduction: Beta thalassemia major which is very common is a principal health problem in Iran. These patients are more often affected by several infections. The aim of the study was to determine the immunity of patients with betathalassemia major, to diphtheria.

Methods: In this case-control study, anti-diphtheria toxin antibody concentration and serum ferritin levels were compared in 224 patients with thalassemia major and in 224 sex and age matched healthy subjects as control group. The serum concentrations of antibody and ferritin were determined by ELISA and CLIA methods, respectively. Subjects who had diphtheria antibody level >0.1 IU/ml were seen to have complete protection, between 0.1 and 0.01 IU/ml as partial protection and <0.01 IU/ml as no protection. For the analysis we used SPSS version 15 software. A two sided P-value less than 0.05 was considered statistically significant.

Results: The mean serum anti diphtheria antibody level was lower in patients with beta thalassemia major than in healthy subjects (1.51 ± 1.60 vs 2.10 ± 1.86 , $p < 0.001$). Seventy percent and 20.0% of patients and 87.9% and 12.1% of healthy subjects had complete and partial protective serum anti diphtheria level, respectively ($p < 0.001$). Only 24.1% of anti-diphtheria antibody (IgG) was dependent to serum ferritin level in patients group ($P < 0.001$). Thus serums anti diphtheria antibody decreased 0.001 IU/ml, when serum ferritin increased 1 ng/ml.

Conclusion: In conclusion, patients with beta thalassemia major had lower anti-diphtheria antibody level than healthy subjects. Thus monitoring immunization status and recommendations for vaccine are essential for increased serum anti-diphtheria antibody concentration.

Keywords

diphtheria; antibody; thalassemia; immunity