

# Immunity to tetanus in major beta thalassemia patients.

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## Abstract

### PURPOSE:

Patients with beta thalassemia major are at increased risk for bacterial infections specially splenectomized patients. The aim of this study was to determine the anti-tetanus antibody concentration among patients with beta thalassemia major.

### MATERIALS AND METHODS:

The anti-tetanus antibody concentration was investigated in 224 patients with thalassemia major and 224 healthy subjects matched for age and gender. Tetanus antibody and ferritin serum level were determined by enzyme-linked immunosorbent assay method using commercial kits.

Subjects who had antibody level  $\geq 0.1$  IU/mL was defined as complete protection, 0.01 to  $< 0.1$  IU/mL as partial protection and  $< 0.01$  IU/mL as no protection. For the analysis, we used SPSS version 11.5 software. A two-sided p-value less 0.05 was considered statistically significant.

### RESULTS:

In patients with beta thalassemia major, antibody level against tetanus was inversely dependent about 29.3% to serum ferritin level. Thus, when serum ferritin increased 1 ng/mL, serum antibody against tetanus decreased 0.002 IU/mL. Mean anti-tetanus (IgG) antibody titers was lower in thalassemia patients compared to healthy subjects ( $1.53 \pm 1.71$  vs.  $2.02 \pm 2.05$ ,  $p = 0.007$ ) that was no significantly associated to age and gender in both study groups. All of participants had serum antibody level 0.01 IU/mL or greater. The complete protective level of anti-tetanus antibody was lower in thalassemia subjects in compare to healthy persons (71% vs. 87.9%,  $p < 0.001$ ).

### CONCLUSION:

Patients with thalassemia had lower anti-tetanus antibody level than healthy subjects. Thus the vaccine recommendation seems essential for patients with beta thalassemia major.

### KEYWORDS:

Antibodies; Immunity; Tetanus; Thalassemia