

# The inverse correlation between serum levels of anti-pneumococcal and ferritin after pneumococcal vaccination in splenectomised beta thalassemia major

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## Abstract

Splenectomy is necessary in beta thalassemia major patients when the spleen becomes hyperactive, leading to extreme destruction of erythrocytes. This study assessed the ferritin effect on serum pneumococcal antibody response following pneumococcal vaccination, in patients with beta thalassemia major after splenectomy. In this case series study, convenience sampling was used to recruit 347 splenectomised beta thalassemia patients under the auspices of Jahrom University of Medical Sciences. Demographic data such as age, sex, and time after splenectomy were recorded by a questionnaire. All participants had been splenectomised and received a dose of Pneumovax® 23 vaccine 14 days before surgery. The IgG antibody responses to pneumococcal vaccine and levels of serum specific ferritin were determined by commercial enzyme immunoassay kits. For the analysis, SPSS software version 16 was used. A p-value less than 0.05 was considered statistically significant. Most of the participants (63.4%) were hyporesponders to pneumococcal vaccine. Also, serum anti-pneumococcal IgG antibody was related to post splenectomy duration and serum ferritin ( $p < 0.001$ ), but not to gender ( $p > 0.05$ ). An important result was a relation of serum anti-pneumococcal IgG antibody to serum ferritin according to post splenectomy duration groups. Therefore, in three groups of post splenectomy duration, the serum ferritin was higher in hypo-responder than in good responder subjects. Our results indicate that serum anti-pneumococcal IgG antibody decreased with increment of serum ferritin and post splenectomy duration. Thus, there is a need to re-address the approach towards revaccination in this immune-compromised group of patients by administering a booster pneumococcal vaccination in an attempt to recover immunity and reduce morbidity.

**Keywords:** pneumococcal vaccines; ferritins; splenectomy; beta thalassemia; Iran.