

DYNAMICS IN POST-VACCINE ANTIBODY IMMUNE RESPONSE TO DIPHTHERIA AND TETANUS TOXOID

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Generating a protective response through a vaccine is a complex challenge. The development of new methods for evaluating vaccine-induced protection enable to determine the immune status in every stage of and to assess the need for revaccination.

Aim: To determine T-dependent response to protein antigens (diphtheria and tetanus toxoid) in age-stratified groups from the Bulgarian population and to look for a correlation with the immunization status and the clinical symptoms.

Materials and methods: The study included 210 individuals, divided into five age groups: 0-3 years, 4-5 years, 6-11 years, 12-16 years, 17-50 years, based on the vaccines received according the Immunisation Program Schedule of the Republic of Bulgaria. Vaccine response was determined by measuring the concentrations of specific IgG antibodies using commercial ELISA kits.

Results: Sufficient protective levels of diphtheria (>0.1 IU/mL) and tetanus (>0.15 IU/mL) antitoxin decrease with age. The level of seroprotection is better for tetanus than for diphtheria toxoid at any age. Analyzing the results in the context of healthy subjects and individuals with more frequent infections and other complaints, we observed that in all age groups the percentage of insufficiently protected for both antigens is higher among frequently ill individuals.

Conclusion: Our data provide information on the level of immunity to diphtheria and tetanus among vaccinated individuals in Bulgaria and allows for the identification of persons suspected of having an immune deficiency. In addition, the information obtained may be of value to consider personalized vaccination program for at risk population groups.

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