TEST ID: DTABS
DIPHTHERIA/TETANUS ANTIBODY PANEL, SERUM

USEFUL FOR
- Assessment of an antibody response to tetanus and diphtheria toxoid vaccines
- An aid to diagnose immunodeficiency

CLINICAL INFORMATION

Diphtheria is an acute, contagious, febrile illness caused by the bacterium Corynebacterium diphtheriae. The disease is classically characterized by a combination of localized inflammation in the upper respiratory tract with the formation of a diphtheric pseudomembrane over the oropharynx, including the tonsils, pharynx, larynx and posterior nasal passages. Corynebacterium diphtheriae produces a potent diphtheria exotoxin which is absorbed systemically and can lead to cardiac failure and paralysis of the diaphragm.

The disease is preventable by vaccination with diphtheria toxoid, which stimulates anti-diphtheria toxoid antibodies. In the United States, diphtheria toxoid is administered to children as part of the combined diphtheria, tetanus, acellular pertussis (TDaP) vaccine. A patient’s immunological response to diphtheria toxoid vaccination can be determined by measuring anti-diphtheria toxoid IgG antibody using this enzyme immunoassay technique. An absence of antibody formation postvaccination may relate to immune deficiency disorders, either congenital or acquired, or iatrogenic due to immunosuppressive drugs.

Tetanus results from contamination of wounds or lacerations with Clostridium tetani spores from the environment. The spores germinate to actively replicating bacterial cells localized within the wound and produce the heat-labile toxin, tetanospasmin. Tetanospasmin attaches to peripheral nerve endings and travels to the central nervous system (CNS) where it blocks inhibitory impulses to motor neurons and leads to severe, spastic muscle contractions, a classic characteristic of tetanus.

The disease is preventable by vaccination with tetanus toxoid (formaldehyde-treated tetanospasmin), which stimulates development of anti-tetanus toxoid antibodies. In the United States, tetanus toxoid is administered to children as part of the combined diphtheria, tetanus, acellular pertussis (TDaP) vaccine.

Two to three weeks following vaccination, a patient’s immunological response may be assessed by measuring the total anti-tetanus toxoid IgG antibody level in serum. An absence of antibody formation post-vaccination may relate to immune deficiency disorders, either congenital or acquired, or iatrogenic due to immunosuppressive drugs.

REFERENCE VALUES

Diphtheria Toxoid IgG Antibody
- Vaccinated: Positive (≥ 0.01 IU/mL)
- Unvaccinated: Negative (< 0.01 IU/mL)

Tetanus Toxoid IgG Antibody
- Vaccinated: Positive (≥ 0.01 IU/mL)
- Unvaccinated: Negative (< 0.01 IU/mL)

ANALYTIC TIME

Same day/1 day

06/2015

CONTENT AND VALUES SUBJECT TO CHANGE. SEE THE MAYO MEDICAL LABORATORIES TEST CATALOG FOR CURRENT INFORMATION.
INTERPRETATION

Diphtheria:
- Results ≥ 0.01 IU/mL suggest a vaccine response.
- A diphtheria toxoid booster should be considered for patients with anti-diphtheria toxoid IgG values between 0.01 and < 0.1 IU/mL.

Tetanus:
- Results ≥ 0.01 IU/mL suggest a vaccine response.
- A tetanus toxoid booster should strongly be considered for patients with anti-tetanus toxoid IgG values between 0.01 and 0.5 IU/mL.
- Some cases of tetanus, usually mild, have occasionally been observed in patients who have a measurable serum level of 0.01 to 1.0 IU/mL.

CLINICAL REFERENCE