

Seroprevalence of anti TBE-IgG and anti-NS1-IgG in blood donors in a highly endemic TBE area in south-eastern Germany

Inhalt

Tick-borne encephalitis (TBE) is the most important tick-borne viral disease in Central Europe. Since the introduction of an effective vaccine no seroprevalence studies have been possible. Therefore, no actual data on the incidence and prevalence of TBE infection in a population is currently available.

We developed an ELISA to detect IgG antibodies against NS1 antigen of TBEV indicating recent or past infection. Using this new test, we tested 1.300 sera from blood donors against TBEV IgG antibodies differentiating between vaccine-induced and infection-induced IgG antibodies.

1.300 sera were screened by a conventional TBE-IgG ELISA. Positive sera were re-tested by NS1-IgG ELISA and by TBEV neutralization test (NT) to distinguish between vaccine-induced and infection-induced antibodies. The NT was applied to exclude IgG cross reactions with other flaviviruses, e.g. yellow fever vaccination, West Nile infection or dengue infection.

The preliminary results show a TBE-IgG prevalence of 85%. Of these, 2,6% reacted positive against TBEV-NS1-IgG, indicating past infection. Most of the other TBEV-IgG positive sera reacted positive in the TBEV NT indicating past vaccination against TBE and excluding other flavivirus infections or vaccinations.

Our data indicate a much higher vaccination rate as reported by official public health data. About 2% of all blood donors and about 10% of non-vaccinated blood donors exhibit serological evidence of a past TBEV infection.

Keywords

tick-borne encephalitis, incidence, vaccination, highly endemic region

Registration-ID code

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Professional Status of the Speaker

Professor

Junior Scientist Status

No, I am not a Junior Scientist.

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