



RECOMMENDATIONS TO IMPROVE TBE SURVEILLANCE AND VACCINE UPTAKE

Background

During the last two decades, there has been an increase in reported TBE cases in Europe. The TBE virus has been spreading into new areas including regions of higher altitude and regions believed to be free of it so far.

Since 2012, the European Centre for Disease Prevention and Control (ECDC) requires all European Union member states, plus Iceland and Norway, to annually report their TBE data to the European Surveillance System (TESSy). Only 8% of EU countries use the current ECDC diagnostic criteria and TBE cases are likely underreported within Europe due to non-optimal access to diagnostic testing and suboptimal (passive) surveillance systems. TBE vaccination recommendations vary in Europe and uptake of vaccines and compliance are highly variable with low vaccinations rates overall.

In September and November 2021, experts from 13 European countries convened (organized by Pfizer) to discuss the effectiveness of the European surveillance system, their impact on vaccine recommendations, and the role of awareness on vaccine uptake. Finally, recommendations were elaborated with the aim that TBE surveillance will improve, and that higher vaccine uptake may reduce the burden of TBE. The result of this expert meeting was summarized in a review article.

Results

In 2019, the ECDC reported that 92% of the countries used the ECDC TBE case definition, but only 8% utilize the current case definition from 2018, and in some non-EU countries, like Serbia, these definitions differ, making comparison of prevalence data between countries difficult.

The ECDC criteria requires symptoms or inflammation of the central nervous system (CNS) for confirmation of TBE, which occurs in the second phase only. However, some countries also collect data about non-specific symptoms (fever only), while non-reporting of illness without the second phase are not reported, and therefore mild CNS symptoms may be missed and may lead to under-reporting of TBE virus infections, especially in children.

The common diagnostic test for determination of TBE antibodies is the enzyme-linked immunosorbent assay (ELISA). Education on when to use this test and when to use additional tests, like the neutralization test (NT) for accurate diagnosis, are limited. In countries where West Nile virus (WNV) is endemic, TBE cases may be misdiagnosed as WNV, especially when there are larger scales of WNV testing compared to TBEV testing and when no NT is used.

In a number of countries, TBE passive surveillance is only done in regions officially defined as risk areas and/or only for a certain time of the year (e.g., from May to October). The absence of evidence for TBE in other regions is then incorrectly interpreted as absence of TBE. Incomplete surveillance can lead to poor understanding of TBE endemic areas and can potentially cause inadequate vaccine recommendations. Unfortunately, high awareness in each country does not automatically result in high vaccine uptake rates.

Discussion

The complexity of TBE vaccination schedules, accessibility, and reimbursement of TBE vaccine, as well as the low awareness of potential consequences of TBE each contribute to the low uptake rates of vaccination across Europe.



Diagnostic criteria and testing should be aligned across Europe.

Reducing the complexity of vaccination and increasing harmonization of vaccination schedules across Europe may improve vaccination rates and adherence to the schedules.

In countries with financial restrictions, local/regional/targeted vaccine reimbursement programs could increase vaccination rates in certain at-risk groups which may lead to an increase in awareness and trust in the general population.

Novel approaches could be employed, e.g., mobile vaccination initiatives and drive-through vaccination centers, especially in rural regions.

TBE awareness is low across Europe and education of disease severity is warranted. Clinical case studies could illustrate to patients and physicians, in a meaningful way, the risks of TBE.

Expanding vaccine recommendations to include the whole population in a country rather than just those who live in defined risk areas or are traveling to risk areas should be considered.

Funding disease awareness campaigns could help to inform the public in TBE-endemic countries about the risk to acquire infection and the disease burden .

Literature

Kunze et al.

Recommendations to improve tick-borne encephalitis surveillance and vaccine uptake in Europe

Microorganisms. 2022;10:1283. doi.org/10.3390/microorganisms10071283

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