

How to improve assessment of tetanus immunity in the Emergency Room: a prospective cost-effectiveness double blind study.

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Background In case of wound, the choice of prophylaxis against tetanus depends on vaccination history that was demonstrated to be unreliable. By improving evaluation of tetanus immunity, the use of a rapid immunoassay (Tetanos Quick Stick®, TQS) as well as some demographic characteristics may be useful to avoid inadequate prophylaxis and cost.

Study objectives To evaluate the contribution of TQS in the choice of prophylaxis and to perform a cost-effectiveness analysis. The final purpose is to define the place of TQS in a modified algorithm for ER assessment of tetanus immunity.

Method In a Belgian multicentric prospective double blind study, 611 adult patients with wound were included in 5 centers; 507 (83%) records were valid. TQS was performed by a nurse before the vaccination history and the choice of prophylaxis was made according the official algorithm by the doctor who was unaware of the TQS result.

Results Overall, seroprotection was 74.1%, but varied significantly among centers from 58.2 to 84.0% ($\text{Chi}^2 < 0.001$). Immunity decreased with increasing age and in females. Protection according vaccination history was negative or unknown in 33.9% of patients and positive in 66.1% with 57.9% and 82.1% positive TQS, respectively. Cost-effectiveness analysis suggests a 25% economy by using the test in patients < 60 years with wounds at risk and negative or unknown vaccination history.

Conclusion In selected patients, TQS is a cost-effective tool to evaluate tetanus immunity. An algorithm is proposed for ER assessment of tetanus immunity integrating age and TQS result.

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