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Abstract (poster session)

Immunogenicity and safety of tick-borne encephalitis vaccination in healthy elderly individuals

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Introduction: Tick born encephalitis (TBE) is a major viral cause for central nervous system disease in Europe. Serious disease with debilitating neurological sequelae is more frequently observed in older TBE patients compared to younger adults and children. Causal antiviral treatment is not available but prevention by active immunization is highly efficacious and widely recommended in Europe. However, evidence for TBE vaccine immunogenicity and protective efficacy in the elderly population is scarce. Since the risk for serious TBE is increased and immunogenicity of vaccines is generally reduced in the elderly, additional data on immunogenicity of TBE vaccine in a naïve elderly population is highly warranted. Objectives: Detailed investigation of immunogenicity and safety of a licensed inactivated whole-virus TBE vaccine (FSME Immun CC®) after primary immunization of 137 healthy elderly subjects in a controlled clinical trial (NCT00461695). Patients and Methods: Of 183 screened patients 137 were included and immunised with a standard three dose regimen of TBE vaccine at week 0, 4 and 24. Major inclusion criteria were: age >70 years, healthy (<= one comorbidity; <= one medication), negative TBE-serology. Immunogenicity was assessed longitudinally by neutralization and ELISA test, safety was evaluated clinically and by standardized questionnaires. Results were compared with previous studies in younger adults that had used the same assays. Results: 4 weeks after the 2nd and 3rd vaccination 98.5% and 99.3% of subjects were seropositive (≥ 10) in the neutralization test. Using a threshold of 126 VIEU/ml in the ELISA the seropositivity rates were 93.4% and 97.8%. Geometric mean titer (GMT) measured by neutralization test were 29.2 and 70.6 after the 2nd and 3rd vaccination, respectively. GMT were 799.4 VIEU/ml and 1933.8 VIEU/ml in the ELISA. In summary, the seropositivity rates for elderly subjects obtained in this study were similar to earlier studies in young adults and children using the same test assays. However, antibody titer were generally lower. Adverse events were mild, transient and comparable to earlier studies in adults. Conclusions: These results suggest that primary TBE vaccination of healthy elderly leads to satisfactory immune responses well above levels considered protective. However, duration of protective immunity may be shorter than in younger individuals.