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Protection of horses from West Nile virus lineage 2 challenge following immunization with a whole, formalin-inactivated WNV lineage 1 vaccine

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Over the last years West Nile Virus (WNV) lineage 2 has spread from the African to the European continent. This study was conducted to demonstrate efficacy of an inactivated, lineage 1-based, WNV vaccine (Equip WNV) against intrathecal challenge of horses with a recent isolate of lineage 2 WNV. Twenty horses, seronegative for WNV, were enrolled and were randomly allocated to one of two treatment groups: an unvaccinated control group (T01, n=10) and a group administered with Equip WNV (T02, n=10). Horses were vaccinated at day 0 and 21 and were challenged at day 42 with WNV lineage 2, Nea Santa/Greece/2010. Personnel performing clinical observations were blinded to treatment allocation. Sixty percent of the controls had to be euthanized after challenge compared to none of the vaccinates. A significantly lower percentage of the vaccinated animals showed clinical disease (two different clinical observations present on the same day) on six different days of study and the percentage of days with clinical disease was significantly lower in the vaccinated group. A total of 80% of the non-vaccinated horses showed viremia while only one vaccinated animal was positive by virus isolation on a single occasion. Vaccinated animals started to develop antibodies against WNV lineage 2 from day 14 (two weeks after the first vaccination) and at day 42 (the time of onset of immunity) they had all developed a strong antibody response. Histopathology scores for all unvaccinated animals ranged from mild to very severe in each of the tissues examined (cervical spinal cord, medulla and pons), whereas in vaccinated horses 8 of 10 animals had no lesions and two had minimal lesions in one tissue. In conclusion, Equip WNV significantly reduced the number of viremic horses, the duration and severity of clinical signs of disease and mortality following challenge with lineage 2 WNV.

Biography

Anne Thomas is DVM and PHD from University of Liège (Belgium). She has also a PostDoc from the same university. She joined Pfizer Animal Health in 2006 and works in Zoetis-VMRD from 2011.

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