

ORIGINAL ARTICLE

High exposure of West Nile virus in equid and wild bird populations in Spain following the epidemic outbreak in 2020

Ignacio García-Bocanegra^{1,2}  | Juan J. Franco³ | Clara I. León⁴ |
 Jesús Barbero-Moyano¹  | María V. García-Miña⁵ | Vicente Fernández-Molera⁶ |
 María B. Gómez⁷ | David Cano-Terriza^{1,2}  | Moisés González^{1,8} 

¹Department of Animal Health, Animal Health and Zoonosis Research Group (GISAZ), UIC Zoonosis and Emerging Diseases (ENZOEM), University of Cordoba, Cordoba, Spain

²CIBERINFEC, ISCIII – CIBER de Enfermedades Infecciosas, Instituto de Salud Carlos III, Madrid, Spain

³Immunology and Applied Genetics, S.A. (Eurofins-Ingenasa), Madrid, Spain

⁴Agencia de Medio Ambiente y Agua de Andalucía (AMAYA), Junta de Andalucía, Sevilla, Spain

⁵Consejería de Agricultura, Pesca, Agua y Desarrollo Rural, Junta de Andalucía, Sevilla, Spain

⁶Agencia de Gestión Agraria y Pesquera en Andalucía (AGAPA), Junta de Andalucía, Sevilla, Spain

⁷Laboratorio Central de Veterinaria (LCV), Ministerio de Agricultura, Pesca y Alimentación, Algete, Madrid, Spain

⁸Department of Animal Health, Faculty of Veterinary Sciences, Regional Campus of International Excellence "Campus Mare Nostrum", University of Murcia, Murcia, Spain

Correspondence

David Cano-Terriza, Department of Animal Health, Animal Health and Zoonosis Research Group (GISAZ), UIC Zoonosis and Emerging Diseases (ENZOEM), University of Cordoba, 14014 Cordoba, Spain.

Email: v82cated@uco.es;
davidcanovet@gmail.com

Abstract

A cross-sectional study was conducted to assess the circulation and risk factors associated with West Nile virus (WNV) exposure in equine and wild bird populations following the largest epidemic outbreak ever reported in Spain. A total of 305 equids and 171 wild birds were sampled between November 2020 and June 2021. IgG antibodies against flaviviruses were detected by blocking enzyme-linked immunosorbent assay (bELISA) in 44.9% (109/243) and 87.1% (54/62) of unvaccinated and vaccinated equids, respectively. The individual seroprevalence in unvaccinated individuals (calculated on animals seropositive by both bELISA and virus microneutralization test [VNT]) was 38.3% (95%CI: 33.1–43.4). No IgM antibodies were detected in animals tested (0/243; 0.0%; 95%CI: 0.0–1.5) by capture-ELISA. The main risk factors associated with WNV exposure in equids were age (adult and geriatric), breed (crossbred) and the absence of a disinsection programme on the facilities. In wild birds, IgG antibodies against flaviviruses were found in 32.7% (56/171; 95%CI: 26.8–38.6) using bELISA, giving an individual WNV seroprevalence of 19.3% (95%CI: 14.3–24.3) after VNT. Seropositivity was found in 37.8% of the 37 species analysed. Species group (raptors), age (>1-year old) and size (large) were the main risk factors related to WNV seropositivity in wild birds. Our results indicate high exposure and widespread distribution of WNV in equid and wild bird populations in Spain after the epidemic outbreak in 2020. The present study highlights the need to continue and improve active surveillance programmes for the detection of WNV in Spain, particularly in those areas at greatest risk of virus circulation.

KEYWORDS

equines, risk factors, Spain, surveillance, West Nile, wild birds

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