



Emerging and Reemerging Infectious Diseases, Region of the Americas

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Serological Study on Migratory and Native Birds, Brazil

Migratory birds are the principal natural reservoirs of such viruses as Avian Influenza, Newcastle, West Nile Virus (WNV) and other rarely studied arboviruses as Mayaro, Oropuche, Tacaiúma, Cacicaporé, San Luís and Rocío. The current epidemic of avian influenza occurring in eight Asian countries has mainly affected small family poultry farms, where birds are raised in the open and contact with potentially infected wild birds is much more probable. In fact, the World Organization for Animal Health (IOE) recommends avoiding contact by domestic fowl with wild birds as a basic measure to prevent and control outbreaks caused by highly pathogenic avian influenza.

The northeastern region of Brazil is visited periodically by thousands of migratory birds moving from the Arctic winter of the North to South America. The species migrating toward northeastern Brazil congregate in its naturally moist coastal areas. This circumstance was the reason behind a study conducted in Salina Diamante Branco, Galinhos, to identify the viruses that could be circulating among the migratory birds flying to the Brazilian coast.

As part of the study, birds were captured between 22 April and 3 May 2003, whereupon their biometric parameters and the clinical status were registered. Blood samples and cloacal discharge were extracted for serological studies and for isolation of WNV and other arboviruses. Studies were also carried out on dead birds, and samples of different organs were collected to isolate avian influenza, Newcastle and West Nile viruses. In addition, mosquitoes from the species circulating in the area were captured for entomological study as well as for serological tests for viral identification.

A total of 711 birds from 23 different species were captured, of which 6 were native species. In some of the species identified (*Calidris alba* and *Arenaria interpres*). West Nile Virus (WNV) had already been isolated beforehand in the USA. Blood samples were extracted from 682 birds, out of which 495 underwent hemoagglutination testing and 294 were tested for viral isolation. Tissue sampling was done on 67 dead birds, 6 of which had been found dead in the area and the rest of which dying during the study.

All the blood and tissue samples were sent to the Evandro Chagas Institute for diagnosis. The studies conducted to isolate the virus among laboratory mice were negative. In the

remaining blood samples, hemoagglutination tests were carried out for antibody detection of 20 different types of arbovirus (Alphavirus, Phebovirus, Orthobunyavirus and Flavivirus): none of the species presented antibodies against WNV, though they did to other arbovirus (Eastern Equine Encephalitis, Oropuche, Mayaro and Caciporé).

The cloacal discharge samples were sent to the laboratory of the Ministry of Agriculture, Livestock, and Provision in Campinas, São Paulo, for isolation of avian Influenza and Newcastle viruses. Material from 388 birds was divided into 22 pools and examined; 13 of the pools turned out to be positive for Avian Influenza A (H3) in samples taken from live migratory birds. Newcastle virus was isolated in 5 samples taken from migratory birds.

This study did not detect any circulation of WNV in the wildlife area of Salina del Diamante Branco in Galinhos State. However, the detection of antibodies for certain arboviruses among these birds demonstrates that the birds had previous contact with these and other related viruses, which accounts for their circulation in the area.

The isolation of Avian Influenza Virus A (H3) in a significant proportion of the birds' cloacal discharges, though of low pathogenicity, motivated shipment of the samples so that additional tests might be carried out on what the strain might mean in terms of its impact on human health.

Sources and Additional Information

- [Boletim eletrônico epidemiológico \(Electronic Epidemiological Bulletin\)](#) No. 2, 2004. Brasília: Secretary of Surveillance in Health (Secretaria de Vigilância em Saúde), Brazil. (in Portuguese)
- Technical Fact Sheet: [Highly Pathogenic Avian Influenza](#). Paris: World Organization for Animal Health (OIE).
- [WHO Manual on Animal Influenza Diagnosis and Surveillance](#). Geneva: World Health Organization (WHO), 2002.