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Introduction

Arbovirus is a shortened version of arthropod borne virus and defines viruses that replicate in, and are transmitted by, blood sucking arthropods. More than 100 arboviruses have been isolated from different species of birds or their arthropod vectors.

Eastern equine encephalitis, western equine encephalitis and West Nile virus (see Poultryhealth BYTES 148) are zoonotic and can cause quite serious neurological disorders and deaths in man. Fatality rates in man are eastern equine encephalitis (50-75%), western equine encephalitis (3-7%) and West Nile virus (4-11%). Of all the arboviruses, only togaviruses and flavivirus cause disease in poultry.

Togaviruses

The togaviruses contain two genera – alphaviruses and rubiviruses – with the former containing the arboviruses including eastern and western equine encephalitis, Venezuelan equine encephalitis and HJ virus.

Flaviviruses

The flaviviruses include West Nile virus, Japanese encephalitis virus and St Louis encephalitis virus.

Disease

Only eastern and western avian encephalitis viruses, Highlands J or HJ virus, West Nile virus and Israel turkey meningoencephalitis virus cause disease in poultry. All the diseases are similar in that they are arthropod borne, clinically show nervous signs, are associated with egg drops in turkeys and are diagnosed by the demonstration of lesions in the brain. Diseases such as Newcastle disease, avian encephalomyelitis, botulism and listeriosis should be considered in the differential diagnosis of nervous diseases.

Diagnosis

Definitive diagnosis is by confirming the virus by isolation, demonstrating viral antigen or RNA or serology.

Control

Intervention strategies are aimed at controlling populations of the vector insects by modifying their environment or chemical sprays. Some vaccines are available.

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