West Nile Fever

West Nile Fever is a disease caused by a virus (WNV) carried by mosquitoes. It causes encephalitis (inflammation of the brain and spinal cord) which can affect humans and other animals as well as horses. Prior to 1999, the virus was found only in Africa, Eastern Europe and Western Asia, but in August 1999 it was identified in the northeastern states of U.S.A. (New York and the New England states), causing fatal illness in a variety of animals, including horses and people. Since then it has spread dramatically across U.S.A. and Canada. In 2002, West Nile Fever was diagnosed in a stallion in official quarantine in Australia after importation from North America.

The virus has been found in Mediterranean Europe, including southern France, causing disease in horses. The disease has not yet been confirmed in the UK, although evidence of virus has recently been found in birds in Britain by researchers in Oxford. It is not clear whether this represents undetected disease in UK or that these birds were challenged and produced antibodies to WNV while migrating elsewhere in Europe. Many UK veterinary surgeons believe that it is probably only a matter of time before cases are seen in UK.

What are the effects of West Nile Fever?
Infection with WNV does not always cause signs of clinical abnormality. Many infected animals show no sign of illness although they produce detectable blood antibody levels. In areas where the virus occurs, wild birds, which are commonly infected by mosquitoes, then act as a source of replicating virus for mosquitoes to bite and then infect other animals. Horses and humans can be infected, causing encephalitis (inflammation of the brain), sometimes with fatal results.

Clinical signs range from a loss of appetite and depression to any one, or combination of the following:-
- Elevated body temperature.
- Weakness or paralysis of the hind limbs.
- Inco-ordination.
- An apparent loss of orientation, resulting in walking in circles or aimless wandering and bumping into walls.
- Blindness or excessive excitability.
- Coma, collapse and death.

How is West Nile Fever diagnosed?
These symptoms are not specific for WNV. Blood and sometimes cerebrospinal fluid (CSF) tests are usually needed to differentiate between different causes of encephalitis and inco-ordination. Diseases to be differentiated include other encephalitis producing viruses (Eastern, Western and Venezuelan encephalitis, not usually seen in UK), protozoal encephalomyelitis (EPM, only seen in horses imported from U.S.A.), wobbler syndrome, traumatic injury, poisoning, bacterial infection and liver disease.
Where a horse is suspected of having West Nile Fever, blood tests can be performed to test for the presence of the virus or antibodies (disease fighting proteins) that the horse has produced in response to the infection.

Can West Nile Fever be treated?
There is no specific treatment for West Nile Fever. Treatment is aimed at symptomatic and supportive care for the encephalitis and the neurological abnormalities that it produces.

A killed virus vaccine is now available for use in horses in the U.S.A. and reports of its use suggest that it is safe and that it produces useful immunity that either prevents or reduces the severity of the disease.
**How do horses pick up West Nile Fever?**
Horses and people are ‘end-stage’ hosts and the virus is not transmitted from one to another. Wild birds are the most important environmental source of infection and mosquitoes pick up the virus when they feed on an infected bird. The virus is then transmitted to the next animal or animals that the mosquito bites. This means that the virus can be spread over vast distances in relatively short time by mosquito transmission where there is a wild bird reservoir of infection.

**How can I prevent my horse from getting West Nile Fever?**
One approach is to avoid geographical areas where disease occurs, however for horses that need to compete internationally, this may not be appropriate. Vaccination appears to be a sensible precaution for such horses. Control of the spread of infection in WNV areas depends upon limiting the breeding and spread of infected mosquitoes. In U.S.A., government laboratories perform postmortem examinations on wild birds, using them as ‘sentinels’ for spread and intensity of infection. Vaccination for horses is now used in high-risk areas in U.S.A. In such areas it is possible that the judicious use of insect repellent may reduce the risk of infection for individual horses and it is sensible to house horses in insect screened and controlled stables during times of maximum mosquito activity.

**Conclusion**
Fortunately, West Nile Fever has not yet occurred in recognisable disease form in UK and most of mainland Europe. It is probable that the virus will continue to spread internationally via infected mosquitoes and wild birds. It is not clear whether an imported infected horse might be able to infect a local mosquito and thereby transmit the virus to a previously uninfected wild bird population. Stringent quarantine measures are no longer in place for horses entering UK from mainland Europe so cases of disease, when they occur, will be found in the community. Many veterinary surgeons expect the virus to arrive at some time in the future and all cases of neurological disease must now be considered a risk for WNV and examined and tested accordingly. Public health issues are involved and Department of Environment, Food and Rural Affairs (DEFRA) are developing contingency plans for use when the first case occurs.

If you import horses into UK you should discuss sensible quarantine and insect control measures with your veterinary surgeon.

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