West Nile virus encephalitis

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What is West Nile virus encephalitis?

West Nile virus (WNV) encephalitis is an infectious encephalitis caused by West Nile virus. People can get infected from the bite of a mosquito that is infected with the virus. West Nile virus is transferred mainly between pigeons and crows by '*Culex'* mosquitoes. The virus is not transmitted from person to person although there are a small proportion of reported cases where transmission has followed organ transplantation, breast-feeding and blood transfusion. There is no evidence that a person can get the virus from handling live or dead infected birds or other animal species.

West Nile fever virus was first discovered in Africa in 1937. Since then, the virus has been found to be distributed not only in Africa, but also southern Europe, the Middle East, America and even parts of the Far East. In 2002 West Nile virus was declared endemic in the USA.
The virus has since spread across the North American continent into Canada (where it is now endemic), and Central and South America. Recently, outbreaks have also occurred in Europe and the United States.

Symptoms of West Nile virus infection/ West Nile virus encephalitis

The time from infection to developing symptoms of West Nile infection is usually 3 - 14 days. The majority (80%) of people who get infected do not display any symptoms. Mild infections are common and include a high temperature, headache and body aches, often with skin rash and swollen lymph glands.

Until recently, brain problems after West Nile infection were thought to be rare. However, in recent years the virus is causing different types of disease affecting the central nervous system including meningitis (inflammation of the lining of the brain), encephalitis (direct inflammation of the brain) and myelitis (inflammation of the spinal cord). Approximately 1 in 100 people infected with the

virus will develop brain complications as a result of infection. Whilst serious illness can occur in people of any age, those at highest risk of severe illness include those aged greater than 50 and those who are immunocompromised (people whose immune system doesn't work as well as it should do).

Encephalitis results when the virus invades the brain causing damage and an inflammatory (swelling) response. The symptoms and signs of West Nile encephalitis range from muscle weakness and paralysis, movement issues including tremors, mild confusion and behavioural changes (which may be mistaken for hysteria) to convulsions (fits) and deep coma.

Diagnosis and prognosis of West Nile encephalitis

Diagnosis is made based on the symptoms and in most cases can be confirmed by urine, blood or cerebrospinal fluid (fluid surrounding the brain and the spinal cord) tests that detect the virus or the body's immune response to the virus. West Nile virus encephalitis is associated with considerable short-term and long-term risks of death and significant difficulties such as fatigue, weakness, depression, difficulty walking, ataxia (difficulties with coordination, balance and speech) and memory loss.

Treatment and prevention

There is no specific treatment for the cause of West Nile virus encephalitis and treatment is supportive. Treatment, in most cases, consists of treating the complications of the disease such as high fever and aches, low blood pressure, blood loss, convulsions (fits), or raised pressure within the skull.

The simplest preventative measure is to avoid bites from the mosquitoes that carry the virus. This means wearing long sleeves and trousers, especially during the evening when the mosquitos bite more frequently and avoiding areas where stagnant water can be found as mosquito larvae need still water to develop. For further protection use an insect spray containing at least 30% DEET (N,N-diethyl-3methlybenzamide) and sleep under bed-nets.

There is no vaccine at present to protect against West Nile virus, although several are being developed and tested.

Future research

Current research is looking at ways to reduce resistance to insecticides used to eradicate mosquitos and develop the best possible treatments for the disease. Treatments that have been

tried include anti-viral drugs and drugs that modulate the body's immune system. It is hoped that a vaccine will soon be available for use, although work needs to be done to ensure that the effects are long-lasting and safe. Much research is also being carried out on surveillance of the disease and to try to predict when and where outbreaks are going to happen.

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