Family Filoviridae

Filoviruses are characteristic for their long filamentous virions. The two important viruses of this family are: Ebolavirus and Marburgvirus

Ebola

African haemorrhagic fever; Ebola haemorrhagic fever

Ebola is probably one of the most dramatic zoonotic infections. It is caused by a virus similar in form to Marburg virus but distinguished by differences in antigen testing profile. The virus is named after a river in The Democratic Republic of the Congo (DRC; formerly Zaire). There are five subtypes of Ebolavirus. The three demonstrated to be pathogenic in humans are Ebola–Ivory Coast, Ebola–Sudan, Ebola–Zaire and Ebola–Bundibugyo. The fifth, Ebola–Reston, has been shown to be pathogenic in apes but not for infected humans. This last type was identified in monkeys imported from the Philippines into Italy and North America for laboratory use. Several research workers became infected with the virus, although none became ill. Ebola haemorrhagic fever was first recognised in 1976, when large outbreaks occurred in southern Sudan and neighbouring northern Zaire.

Transmission

The natural reservoir of Ebola virus is not proven fully; however, it has been detected in three species of fruit bats. Scientists from the Institut Pasteur, Paris, have also detected it in small rodents in the Central African Republic. There is still work to be done to discover how the virus is transmitted to apes and monkeys, which have previously been identified as the link to human infection. The handling of ill or dead infected chimpanzees was shown to be the source of human infection in outbreaks in the Ivory Coast, Gabon and the DRC. Mortality rates have been as high as 90% in some outbreaks.

Disease in humans

The virus has an incubation period of between 2 and 21 days after exposure and infection in humans before clinical signs are seen. Weakness, lethargy, temperature as high as 39ºC, muscle and joint pain, sore throat, headache, nausea, vomiting and diarrhoea. The development of a severe skin rash and mental confusion is concurrent with the progression of the illness. Kidney and liver damage occurs and catastrophic internal and external haemorrhage leads to death towards the beginning of the second week. The virus is present in high concentrations in the blood, tissue fluids and most organs of the body. Human-to-human transmission occurs after direct contact with the blood, secretions or semen of infected patients. Following the first confirmed or index case, transmission occurs to those in closest contact with the victim. These can be friends, family or healthcare workers.

Treatment

There is no therapeutic treatment for the disease.

Marburg virus

Marburg virus is caused by a filovirus closely related to but distinct from Ebola virus. It causes a haemorrhagic fever similar to Ebola fever, and has been isolated from fruit bats. The main range for the disease is Uganda and eastern Congo.

The animal host is now believed to be bats, following the detection of antibodies/isolation of the virus from bats and fruit bats living in underground mines in The Democratic Republic of Congo (DRC). The bats are believed to shed the virus in their blood, saliva, faeces and urine, in a manner similar to many other bat-borne viruses. The initial outbreak among laboratory primates, which then spread to humans in Marburg, Germany in 1967, is believed to have arisen after the monkeys were held in a holding facility in Uganda where they were exposed to fruit bats that may have been infected. Disease in humans: Similar to Ebolavirus