Overview

Marburg virus disease is a highly virulent disease that causes haemorrhagic fever, with a fatality ratio of up to 88%. It is in the same family as the virus that causes Ebola virus disease. Two large outbreaks that occurred simultaneously in Marburg and Frankfurt in Germany, and in Belgrade, Serbia, in 1967, led to the initial recognition of the disease. The outbreak was associated with laboratory work using African green monkeys (*Cercopithecus aethiops*) imported from Uganda. Subsequently, 15 outbreaks and sporadic cases have been reported until 2022. Of which, 11 were reported in Africa, and this year adding 2 countries: Equatorial Guinea and Tanzania.

Human infection with Marburg virus disease initially results from prolonged exposure to mines or caves inhabited by Rousettus bat colonies. Once an individual is infected with the virus, Marburg can spread through human-to-human transmission via direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids.

Symptoms

Illness caused by Marburg virus begins abruptly, with high fever, severe headache and severe malaise. Muscle aches and pains are a common feature. Severe watery diarrhoea, abdominal pain and cramping, nausea and vomiting can begin on the third day. Diarrhoea can persist for a week. The appearance of patients at this phase has been described as showing “ghost-like” drawn features, deep-set eyes, expressionless faces and extreme lethargy. A non-itchy rash has been noted between 2 and 7 days after the onset of symptoms.

Many patients develop severe haemorrhagic manifestations within 7 days, and fatal cases

usually have bleeding, often from multiple areas. Fresh blood in vomitus and faeces is often accompanied by bleeding from the nose, gums and vagina. Spontaneous bleeding at venepuncture sites (where intravenous access is obtained to give fluids or obtain blood samples) can be particularly troublesome. During the severe phase of illness, patients have sustained high fevers. Involvement of the central nervous system can result in confusion, irritability and aggression. Orchitis (inflammation of the testicles) has been reported occasionally in the late phase (15 days).

In fatal cases, death usually occurs between 8 and 9 days after onset, usually preceded by severe blood loss and shock.

Prevention and control

Good outbreak control relies on using a range of interventions, such as case management, surveillance and contact tracing, a good laboratory service, safe and dignified burials, and social mobilization. Community engagement is key to successfully controlling outbreaks. Raising awareness of risk factors for Marburg infection and protective measures that individuals can take is an effective way to reduce human transmission.

Risk reduction messaging should focus on several factors:

Reducing the risk of bat-to-human transmission arising from prolonged exposure to mines or caves inhabited by fruit bat colonies. During work or research activities or tourist visits in mines or caves inhabited by fruit bat colonies, people should wear gloves and other appropriate protective clothing (including masks). During outbreaks all animal products (blood and meat) should be thoroughly cooked before consumption.

Reducing the risk of human-to-human transmission in the community arising from direct or close contact with infected patients, particularly with their body fluids. Close physical contact with Marburg patients should be avoided. Gloves and appropriate personal protective equipment should be worn when taking care of ill patients at home. Regular hand washing should be performed after visiting sick relatives in hospital, as well as after taking care of ill patients at home.

Communities affected by Marburg should make efforts to ensure that the population is well

informed, both about the nature of the disease itself and about necessary outbreak containment measures.

Outbreak containment measures include prompt, safe and dignified burial of the deceased, identifying people who may have been in contact with someone infected with Marburg and monitoring their health for 21 days, separating the healthy from the sick to prevent further spread and providing care to confirmed patient and maintaining good hygiene and a clean environment need to be observed.

Reducing the risk of possible sexual transmission. Based on further analysis of ongoing research, WHO recommends that male survivors of Marburg virus disease practise safer sex and hygiene for 12 months from onset of symptoms or until their semen twice tests negative for Marburg virus. Contact with body fluids should be avoided and washing with soap and water is recommended. WHO does not recommend isolation of male or female convalescent patients whose blood has tested negative for Marburg virus.

Controlling infection in health care settings

Health care workers should always take standard precautions when caring for patients, regardless of their presumed diagnosis. These include basic hand hygiene, respiratory hygiene, use of personal protective equipment (to block splashes or other contact with infected materials), safe injection practices and safe and dignified burial practices.

Health care workers caring for patients with suspected or confirmed Marburg virus should apply extra infection control measures to prevent contact with the patient’s blood and body fluids and contaminated surfaces or materials such as clothing and bedding. When in close contact (within 1 metre) of patients with Marburg virus disease, health care workers should wear face protection (a face shield or a medical mask and goggles), a clean, non-sterile long-sleeved gown, and gloves (sterile gloves for some procedures).

Laboratory workers are also at risk. Samples taken from humans and animals for investigation of Marburg infection should be handled by trained staff and processed in suitably equipped laboratories.

Diagnosis

It can be difficult to clinically distinguish Marburg virus disease from other infectious diseases such as malaria, typhoid fever, shigellosis, meningitis and other viral haemorrhagic fevers. Confirmation that symptoms are caused by Marburg virus infection are made using the following diagnostic methods:

antibody enzyme-linked immunosorbent assay (ELISA);

antigen detection tests;

serum neutralization tests;

reverse-transcriptase polymerase chain reaction (RT-PCR) assay; and

virus isolation by cell culture.

Samples collected from patients are an extreme biohazard risk and laboratory testing on non-inactivated samples need to be conducted under maximum biological containment conditions. All biological specimens must be packaged using the triple packaging system when transported nationally and internationally.

Treatment

Early supportive care with rehydration with oral or intravenous fluids, and symptomatic treatment improves survival. There is of yet no proven treatment available for Marburg virus disease. However, a range of potential treatments, including blood products, immune therapies and drug therapies, are currently being evaluated.

Latest development of therapeutics/vaccines

There are no vaccines or antiviral treatments approved to treat the virus, but some are in development. WHO, together with partners, is leading an effort to evaluate candidate vaccines

and therapeutics according in the context of the outbreak response.

Any decision regarding research during Marburg virus disease outbreaks will be made by and in coordination with the national authorities and with inputs from national researchers. Strong global collaboration, with the national authorities at the centre, is critical to the success of any research done during an outbreak.

Wednesday 22nd of May 2024 06:33:12 PM