Marburg Virus Disease

Introduction

Marburg Virus Disease (MVD) was first identified in 1967 when outbreaks of the disease occurred simultaneously in laboratories in the cities of Marburg and Frankfurt in Germany and in Belgrade, Serbia. Groups of laboratory workers contracted the disease from imported African green monkeys in their lab and then transmitted MVD to family members and healthcare workers who cared for them when they fell ill. Seven deaths were reported in these outbreaks.

What is Marburg Virus Disease (MVD)

- It is a viral haemorrhagic fever which comes from the same family of viruses as Ebola Virus Disease (EVD) and causes similar symptoms to EVD.
- The Marburg virus is rare but can cause outbreaks which spread quickly. It has a high case fatality rate.
- The case fatality rate in outbreaks of MVD has ranged from 24% to 88%.
- Treatment is supportive; there is no specific medication or vaccine available to treat MVD.
- The African fruit bat, *Rousettus aegyptiacus*, hosts the virus, but does not display signs of the illness. This fruit bat is found across wide swathes of Africa and lives in caves.
- Humans are thought to become infected with MVD through contact with infected bat faeces or aerosols. The process of transmission from fruit bats to humans is poorly understood.
- Primates can become infected with Marburg Virus Disease and develop a serious form of the disease, with a high mortality rate.

Where do cases of Marburg Virus Disease occur?

Cases of Marburg Virus Disease have occurred sporadically in the following African countries since the first outbreaks in 1967:

- Angola
- Democratic Republic of Congo
- Kenya
- South Africa
- Uganda
Sporadic cases of MVD occur outside of Africa, when international travellers contract the disease in Africa but do not develop symptoms until they have returned to their home country.

How is it transmitted?

Outbreaks have often started when mine workers have been operating in fruit bat-infested mines. The virus passes from the bats to the mine workers. Person-to-person transmission follows when people have direct contact with the blood, body fluids, secretions or tissues of infected persons. The virus can remain in the semen of an infected person for up to seven weeks after the person has recovered clinically.

Health Care Workers (HCWs) are at particularly high risk of contracting MVD when treating patients infected with the virus. It is vital that detailed infection control precautions are followed including the safe disposal of contaminated equipment and measures to avoid needle stick injuries.

Traditional burial ceremonies where relatives and friends of the deceased have direct contact with the body are a frequent cause of transmission in Africa.

What are the signs and symptoms?

MVD has an incubation period of 2-21 days. The first symptoms to appear are:

- Fever
- Chills
- Headache
- Muscle pain

Around five to seven days after symptoms are first experienced, further symptoms start to occur which can become increasingly severe:

- A rash appears which is usually found on the chest, back and stomach
- Nausea & vomiting
- Chest & abdominal pain
- Sore throat
- Diarrhoea
- Jaundice
- Delirium & shock
- Inflammation of the pancreas
- Haemorrhaging
Multi-organ failure

Several of the signs and symptoms of MVD are similar to those caused by other diseases such as typhoid, malaria, cholera, leptospirosis and others. This may cause difficulties and delays in accurately diagnosing MVD.

What is the treatment?

Treatment is supportive as there is no specific therapy for Marburg Virus Disease. Hospital treatment includes administering fluids which replace lost salts and sugars, oxygen, blood transfusions and treating any infections. Strict barrier nursing techniques are utilised to treat patients.

How is it diagnosed?

If MVD is suspected, the patient is placed in isolation. Samples are then taken from the patient and tested for MVD.

How can it be prevented?

- Avoid contact with African fruit bats. Do not visit caves or mines inhabited by fruit bats.
- Avoid contact with primates which might be infected with Marburg Virus Disease.
- Avoid contact with humans who might be infected with Marburg Virus Disease.

Advice for humanitarian workers and international travellers

If you are travelling to endemic regions in Africa, the risk of contracting MVD is low as long as you avoid contact with fruit bats, infected humans and primates.

Your risk of exposure to MVD is higher if you are a veterinarian or laboratory worker who handles primates from Africa. Family members and health care workers who care for infected patients are at highest risk, particularly if they have not followed correct barrier nursing procedures.

Sources

- World Health Organization
- Centers for Disease Control & Prevention

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