Crimean-Congo haemorrhagic fever

Crimean-Congo haemorrhagic fever (CCHF) is an infectious and potentially lethal disease caused by a nairovirus from the Bunyavirus family. Infected ticks transmit the virus to humans via their bite. The symptoms include fever, jaundice, generally feeling unwell and muscular aches. In severe cases, haemorrhage (bleeding) from small blood vessels leads to a red rash forming on the membranes of the eyes, inside of the eyelids, mouth, skin and the internal organs.

Without treatment, around 30 per cent of people who become infected will die, usually within two weeks of falling ill. Treatment, including antiviral medicines and intensive care, can reduce the death rate significantly. CCHF is mainly found in areas of Africa, Eastern Europe, the Middle East, the former Soviet Union, Central Asia and China. Viruses that cause similar viral haemorrhagic fevers include the Lassa fever virus (LF), the Ebola virus (EV) and the Marburg virus (MV).

Symptoms

CCHF ranges from relatively mild to fatal. The progression of CCHF can include:

- Fever.
- Headache.
- Sore throat.
- General malaise.
- Muscle aches.
- Sore eyes, including light sensitivity.
- Red rash on the eyes, the inside surfaces of the eyelids, roof of the mouth and skin, caused by haemorrhaging of tiny blood vessels.
- Nosebleeds.
- Bleeding gums.
- Nausea.
- Loss of appetite.
- Abdominal pain.
- Vomiting.
- Diarrhoea.
- Mood changes.
- Chest pain.
- Tachycardia (rapid heart rate).
- Dizziness.
- Seizures.
- Death.

CCHF can be fatal

In mild or moderate cases of CCHF, the patient starts to recover after nine or 10 days. However, CCHF is deadly in around one third of cases. The virus attacks and destroys bone marrow and blood vessels. The red rash, caused by the haemorrhaging of blood vessels, first appears on the whites of the eyes, insides of the eyelids, roof of the mouth, throat and skin. This is called a petechial rash. In time, this rash spreads (ecchymoses rash) and may include other episodes of abnormal haemorrhaging, such as bleeding from the bowel. There may also be nosebleeds, bleeding from the gums, and blood in the urine. In severe cases, the haemorrhaging causes major organs - such as the liver, kidneys and lungs - to fail.

Ticks are common reservoirs

The nairovirus responsible for causing CCHF commonly infects a wide range of animals, both domestic and wild, including livestock (such as sheep and cattle), rabbits, some bird species (such as ostrich) and rodents. It is thought that these animals catch the infection the same way humans do - from the bite of infected ticks. These ticks are immune to the disease and carry the virus for life. It is thought that the females of some species of tick transfer the viral infection to their offspring, and that the virus can be passed from one infected tick to another during copulation, much like a venereal disease. A human can be infected with CCHF in a number of ways including:

- A bite from an infected tick.
- Contact with blood or tissues from infected livestock. People who work with animals, such as veterinarians, are at increased risk.
- Accidental inoculation with infected blood; for example, a health care professional may prick their finger while taking a blood sample from a patient.

The incubation period varies

The incubation period for CCHF depends on the mode of transmission. For example, infection via tick bite takes between one and nine days to become symptomatic, while infection via contaminated blood may take from five to 13 days.

Diagnosis methods

CCHF is diagnosed using a number of tests including:

- Medical history, including recent travel destinations
- Physical examination
- Blood tests to check for the presence of antibodies
- Tissue tests to check for the presence of the virus.

Treatment options

There is no cure for CCHF. Treatment aims to reduce the symptoms, where possible, and support the patient's vital functions (such as breathing) in cases of severe infection. Treatment options include:

- Hospitalisation, preferably at an infectious diseases unit.
- Isolation of the patient and strict infection control to prevent outbreaks of CCHF at the hospital.
- Antiviral medication (ribavirin) administered intravenously for around 10 days. This can reduce the risk of death if given within six days of the tick bite.
- Anti-nausea medication.
- Pain-killing drugs.
- Medications to reduce the fever.
- Plenty of fluids, often given intravenously.
- Careful monitoring and supplementation of electrolytes.
- Blood donation, if required.
- Other life support, such as ventilation, if required.

Prevention strategies

There is no cure for CCHF and no vaccine, so prevention is crucial. Suggestions include:

- If possible, avoid travelling to regions where CCHF is endemic.
- If you have to travel to those regions, you must vigilantly avoid tick bites.
- Wear long trousers, long socks and hiking boots when outdoors, especially around bodies of water.
- Liberally apply insect repellent that contains the chemical DEET onto all areas of exposed skin. Reapply regularly according to the instructions on the label.
- Avoid touching animals or, if you must, wear gloves and other protective clothing.
- Scrutinise your skin and clothes regularly for ticks.

- If you find a tick on your skin, it is important to remove it correctly. Use tweezers to grasp the tick's head, then pull the tick out of your skin. **Don't squeeze the tick's body**, as this will pump its insides - including any viruses it may be carrying - directly into the wound.
- Seek medical attention immediately.

CCHF is a 'quarantinable' disease

On returning to Australia, notify the State Chief Quarantine Officer if you think you are at risk of CCHF. You may need to be quarantined and tested for infection. If necessary, any casual or close contacts will be tracked down by the authorities to make sure the infection is contained.

Where to get help

- Your doctor
- Travel health clinic
- Communicable Disease Prevention and Control Unit, Department of Health Victoria Tel. (03) 9096 0000
- State Chief Quarantine Officer Tel. 1300 651 160 (business hours) after hours Tel. 1300 790 733.

Things to remember

- Crimean-Congo haemorrhagic fever (CCHF) is a potentially lethal disease caused by a nairovirus from the Bunyavirus family.
- Infected ticks transmit the virus to humans via their bite.
- In severe cases, the patient bleeds until death occurs by failure of major organs, such as lungs or liver.
- CCHF is limited to areas of Africa, Eastern Europe, the Middle East, the former Soviet Union, Central Asia and China.
- There is no cure and no vaccine.

This page has been produced in consultation with, and approved by:

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