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16 April 2005

Dear Doctor,

Marburg haemorrhagic fever in Angola

I would like to draw your attention to the current outbreak of Marburg haemorrhagic fever in Angola which is not only the largest on record, with the highest fatality, but is also the first to occur in an urban setting. According to the World Health Organization (WHO), from last October to 12 April, a total of 235 cases, including 215 deaths, have been reported from this African country. The cases are concentrated in the north-western provinces, including Uige, Luanda, Cabinda, Malanje, Kuanza Norte, Kuanza Sul and Zaire. Uige is the most severely affected province, reporting a cumulative total of 208 cases and 194 deaths. Children under the age of 5 years initially accounted for around 75% of cases, but recent cases are including an increasing number of adults. Cases also included health care workers. The situation is still evolving. For latest update, please visit the WHO website <http://www.who.int/csr/disease/marburg/en/>

As of 13 April, WHO was not aware of any cases that occurred in foreign nationals other than those involved in the care of cases in Uige. WHO does not recommend restrictions on travel to Angola but does advise some precautions. Travellers to Angola should be aware of the outbreak and of the need to avoid close contact with ill persons. Persons with existing medical conditions who might require hospitalization should consider deferring non-essential travel to Angola, particularly to Uige Province.

Transmission of the virus from person to person requires extremely close contact with a patient or his body fluids. There is no direct flight between Hong Kong and Angola. Temperature screening for arrivals at Hong Kong International Airport is ongoing. The risk of importation to Hong Kong is considered low, but it would be prudent to be vigilant in managing patients who developed febrile illness during or after travelling to Africa, and ask a detailed travel history.

A fact sheet on Marburg haemorrhagic fever is enclosed. Suspected cases of viral haemorrhagic fever should be reported to Central Notification Office through phone (24772772), fax (24772770) or CENO On-line (www.chp.gov.hk/ceno).



Yours sincerely,

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1. Title

Fact Sheet on Marburg Haemorrhagic Fever

2. Introduction

Marburg haemorrhagic fever is a rare, severe type of haemorrhagic fever caused by Marburgvirus of the Filoviridae family which include Ebola virus. It occurs primarily in East and Central Africa. Filoviruses are among the most virulent pathogens known to infect humans. It affects both humans and non-human primates. The natural reservoir of the virus is unknown.

3. Mode of Transmission

Transmission of the virus from person to person requires extremely close contact with a patient. Infection results from contact with blood or other body fluids (faeces, vomitus, urine, saliva, and respiratory secretions) with high virus concentration, especially when these fluids contain blood. The risk is highest during the late stages of disease when the patient is vomiting, having diarrhoea, or bleeding. Close contact with a severely ill patient and provision of patient care without appropriate isolation precautions are common routes of infection. Transmission via contaminated injection equipment or through needle-stick injuries is associated with more severe disease, rapid deterioration, and possibly higher fatality. Transmission via infected semen can occur up to seven weeks after clinical recovery. Transmission does not occur during the incubation period.

Infection through casual contact is thought to be exceedingly rare. The low rate of transmission to persons with casual contact suggests that aerosol transmission via the respiratory tract is not efficient, if it occurs at all.

4. Incubation period

The incubation period in previous outbreaks ranged from 3 to 9 days.[1] (occasionally up to 21 days) [2]

5. Clinical features

Sudden onset of fever, chills, headache and malaise followed by progressive and rapid deterioration and cachexia. Nausea, vomiting, watery diarrhoea, abdominal pain, chest pain and sore throat begin about the third day. Around the fifth day after the onset of symptoms, a maculopapular rash, most prominent on the trunk (chest, back, stomach) may occur.

Many patients develop severe haemorrhagic manifestations between days 5 and 7, and fatal cases usually have some form of bleeding, often from multiple sites. The associated bleeding tendency is often accompanied by renal failure, hepatic damage, jaundice, neurological involvement and shock with multi-organ dysfunction.

In fatal cases, death occurs most often between 8 and 9 days after symptoms onset, usually preceded by blood loss and shock. Fatality rates for outbreaks of Marburg haemorrhagic fever have ranged from approximately 25% - 80%. [2]

All ages are susceptible, but most cases have occurred in adults. Prior to the outbreak in Angola in 2004 – 2005, paediatric cases were considered extremely rare.

Important differential diagnosis to consider in travellers from affected areas include malaria and typhoid fever.

6. Referral of Cases

a) Patients are suspected to be having Marburg haemorrhagic fever, if within three weeks before onset of fever, have either:

- residence or travel in the special local areas of the affected countries (e.g. Angola)

where Marburg haemorrhagic fever has recently occurred; or

- direct contact with blood, other body fluids, secretions, or excretions of a person or animal suspected of having viral haemorrhagic fever; or
- worked in a laboratory or animal facility that handles haemorrhagic fever viruses.

- b) Suspected cases of Marburg haemorrhagic fever should be referred to the Infectious Disease Units of Princess Margaret Hospital. Early referral can reduce the chance of secondary transmission. Malaria is the most common cause of travel-related fever and should be excluded as far as possible before transfer.

7. **Diagnosis**

By electron microscopy, polymerase chain reaction (PCR) or serology. Special arrangement with Public Health Laboratory Centre of Centre for Health Protection is needed.

8. **Close Contacts**

They are persons who, after the time of onset of the patient's illness, have direct contact with the patient's body fluids, cared for the patient or handled specimens from the patient, or have direct contact with the body of the patient who died of Marburg haemorrhagic fever.

9. **Infection control measures**

- a) Our knowledge of the disease is still limited. Taking experience from other haemorrhagic fevers, if a patient is either suspected or confirmed to have Marburg haemorrhagic fever, direct physical contact with the patient, blood, body fluids, secretions and excretions should be avoided by strict standard and contact precautions. These precautions include wearing of impermeable protective gowns, gloves, masks and eye protection (goggles or face shields). One should take great precautions against needlestick injuries and other mucocutaneous exposures. The infected individuals should be placed in strict isolation.
- b) Concurrent disinfection: patient's excreta, sputum, blood and all objects with which the patient has had contact must be disinfected with 5,000 ppm sodium hypochlorite (i.e. 1 part of household bleach in 9 parts water) For disinfecting fomites and environmental surfaces, use 500 ppm sodium hypochlorite (i.e. 1 part of household bleach in 99 parts water) or follow existing disinfection guidelines.
- c) Dead body management belongs to Category 3. [5] Handling of the body should be minimal.

10. **Treatment**

Supportive care is the mainstay of treatment.

11. **Vaccination**

No vaccine available.

12. **Reference**

1. World Health Organization. Marburg haemorrhagic fever – fact sheet. 31 March 2005. Available from at <http://www.who.int/csr/disease/marburg/factsheet/en>
2. Heymann DL. ed. Ebola-Marburg Viral Diseases. In: Control of Communicable Diseases Manual 18ed. American Public Health Association. 2004.
3. Centers for Disease Control. Marburg haemorrhagic fever – fact sheet. 30 March 2005. Available from http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/Fact_Sheets/Marburg_Hemorrhagic_Fever_Fact_Sheet.pdf
4. Hospital Authority. Management of Patients with Suspected Viral Haemorrhagic Fever. Jan 2003.
5. Department of Health, Hospital Authority, Food and Environmental Hygiene Department. Precautions for Handling and Disposal of Dead Bodies. 2002 (4th ed) Available from <http://www.info.gov.hk/aids/pdf/g110.pdf>