

Middle East Respiratory Syndrome (MERS)

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Abstract

Middle East respiratory syndrome (MERS) is a viral respiratory disease caused by a novel coronavirus (MERS CoV) that was first identified in Saudi Arabia in 2012. Coronaviruses are a large family of viruses that can cause diseases ranging from the common cold to Severe Acute Respiratory Syndrome (SARS). Typical MERS symptoms include fever, cough and shortness of breath. Pneumonia is common, but not always present. Gastrointestinal symptoms, including diarrhoea, have also been reported. Approximately 36% of reported patients with MERS have died. Although the majority of human cases of MERS have been attributed to human-to-human infections, camels are likely to be a major reservoir host for MERS-CoV and an animal source of MERS infection in humans. However, the exact role of camels in transmission of the virus and the exact route(s) of transmission are unknown. The virus does not seem to pass easily from person to person unless there is close contact, such as occurs when providing unprotected care to a patient.

Keywords: MERS Cov; Viruses; Pneumonia; Respiratory Distress; Darwinism and Transmission.

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Introduction

The Middle East respiratory syndrome coronavirus (MERS-CoV), is a novel positive-sense, single-stranded RNA virus of the genus Betacoronavirus. It was first reported in 2012 after genome sequencing of a virus isolated from sputum samples from a person who fell ill in a 2012 outbreak of a new flu. MERS-CoV genomes are phylogenetically classified into two clades, clade A and B. The earliest cases of MERS were of clade A clusters (EMC/2012 and Jordan-N3/2012), and new cases are genetically distinct (clade B). As of July 2015, MERS-CoV cases have been reported in over 21 countries, including Saudi Arabia, Jordan, Qatar,

Egypt, the United Arab Emirates, Kuwait, Turkey, Oman, Algeria, Bangladesh, Indonesia (none were confirmed), Austria, the United Kingdom, South Korea the United States [5,6], Mainland China, Thailand, and the Philippines.

Outset

The first confirmed case was reported in Saudi Arabia 2012. A second case was found in September 2012, a 49-year-old male living in Qatar presented with similar flu symptoms, and a sequence of the virus was nearly identical to that of the first case.

Dispatch

On 13 February 2013, the World Health Organization stated “the risk of sustained person-to-person transmission appears to be very low. The Centers for Disease Control and Prevention (CDC) list MERS as transmissible from human-to-human.

1. Non-human to human transmission: The route

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of transmission from animals to humans is not fully understood, but camels are likely to be a major reservoir host for MERS-CoV and an animal source of infection in humans. Strains of MERS-CoV that are identical to human strains have been isolated from camels in several countries, including Egypt, Oman, Qatar, and Saudi Arabia.

2. Human-to-human transmission: The virus does not appear to pass easily from person to person unless there is close contact, such as providing unprotected care to an infected patient. There have been clusters of cases in healthcare facilities, where human-to-human transmission appears to be more probable, especially when infection prevention and control practices are inadequate. Thus far, no sustained community transmission has been documented.

Darwinism

The evidence available to date suggests that the viruses have been present in bats for some time and had spread to camels by the mid 1990s. The viruses appear to have spread from camels to humans in the early 2010s. The original bat host species and the time of initial infection in this species have yet to be determined.

People at Increased Risk

1. People with co-morbid condition included diabetes; cancer; and chronic lung, heart, and kidney disease and weakened immune systems.
2. Recent Travellers from the Arabian Peninsula
3. Close Contacts of an Ill Traveller from the Arabian Peninsula
4. Close Contacts of a Confirmed Case of MERS
5. Healthcare Personnel Not Using Recommended Infection-Control Precautions
6. People with Exposure to Camels

The Incubation Period for MERS

Are usually about 5 or 6 days, but can range from 2-14 days.

Symptoms

Common symptoms are severe acute respiratory illness with symptoms of: fever, cough and shortness of breath. Some people also had

gastrointestinal symptoms including diarrhea and nausea/vomiting.

Treatment and Prevention

- There is no vaccine or specific treatment is available at present. Only supportive treatment is available based on the clinical symptoms.
- As a general precaution, anyone visiting farms, markets, barns, or other places where camels and other animals are present should practice general hygiene measures, including regular hand washing before and after touching animals, and should avoid contact with sick animals.
- The consumption of raw or undercooked animal products, including milk and meat, carries a high risk of infection from a variety of organisms that might cause disease in humans. Animal products that are processed appropriately through cooking or pasteurization are safe for consumption, but should also be handled with care to avoid cross contamination with uncooked foods. Camel meat and camel milk are nutritious products that can continue to be consumed after pasteurization, cooking, or other heat treatments.
- People at increase risk should avoid contact with camels, drinking raw camel milk or camel urine, or eating meat that has not been properly cooked.
- Appropriate measures to decrease the risk of transmission of the virus from an infected patient to other patients, health care workers, or visitors. Health care workers should be educated and trained in infection prevention and control and should refresh these skills regularly.

Complication

Pneumonia and kidney failure.

Prognosis

About 3-4 out of every 10 people reported with MERS have died.

Most of the people who died had an underlying medical condition. Some infected people had mild symptoms (such as cold-like symptoms) or no symptoms at all; they recovered.

Pneumonia due to MERS CoV is associated with a high rate of mortality that reached 76%.

Role of CDC in Controlling MERS CoV

1. continued to collaborate with international partners on epidemiologic and laboratory studies to better understand MERS
2. Improved the way to collect data about MERS cases
3. Increased lab testing capacity in states to detect cases
4. Developed guidance and tools for health departments to conduct public health investigations when MERS cases are suspected or confirmed
5. Provided recommendations for healthcare infection control and other measures to prevent disease spread
6. Provided guidance for flight crews, Emergency Medical Service (EMS) units at airports, and U.S. Customs and Border Protection (CPB) officers about reporting ill travellers to CDC
7. Disseminated up-to-date information to the general public, international travellers, and public health partners
8. Used Advanced Molecular Detection (AMD) methods to sequence the complete virus genome on specimens from cases to help evaluate and further describe the characteristics of MERS-CoV.

Role of WHO in Controlling MERS CoV

1. WHO is working with clinicians and scientists in affected countries and internationally to gather and share scientific evidence to better understand of the disease?.
2. Working with countries to develop public health prevention strategies to combat the virus.
3. WHO is coordinating the global health response to MERS, including: the provision of updated information on the situation; conducting risk assessments and joint investigations with national authorities; convening scientific meetings; and developing guidance and training for health authorities and technical health agencies on interim surveillance recommendations, laboratory testing of cases, infection prevention and control, and clinical management

4. WHO continues to request that Member States report to WHO all confirmed and probable cases of infection with MERS-CoV together with information about their exposure, testing, and clinical course to inform the most effective international preparedness and response.

Discussion

Transmission of MERS CoV between patients to health care worker also reported. It is not easy to diagnose this condition as early as possible as the symptoms are like flu and non specific. Prevention and spread control measure are only effective method to prevent the possible spread of MERS CoV in general public as well as in health care facility. Positive case of MERS CoV is not reported in India yet, but the symptoms of swine flu and MERS CoV looks similar. HINI virus which causes swine flu also derived from same group of virus. It is expected to follow prevention and control measure that we follow for influenza A (H1N1) to be free from MERS CoV in India even in the future.

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