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ISSN: 2327-5073
Clinical Microbiology: Open Access

Opinion Article

Epidemiology and Characteristics of Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

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DESCRIPTION

Middle East Respiratory Syndrome Coronavirus (MERS-CoV) is a zoonotic virus, which implies that it can spread from people to animals. According to studies, humans can become infected by coming into contact either directly or indirectly with infected dromedary camels. MERS-CoV has been found in dromedaries in a number of nations, including Egypt, Oman, Qatar, and Saudi Arabia. MERS-CoV specific antibodies have also been found in dromedaries across the Middle East, Africa, and South Asia, which is a sign that an animal has previously been infected with MERS-CoV [1].

Although the virus's origins are not entirely understood, it is thought that it may have started in bats and spread to camels at some unspecified point in the distant past based on the research of several virus genomes. Large, enveloped, positive-sense RNA viruses known as Coronaviruses (CoVs). It infects a variety of mammals, including humans and birds [2]. These viruses are made up of a small number of structural proteins that support a positive-stranded genome that is relatively lengthy. They exist everywhere and have the potential to spread serious medical and veterinary conditions. Infections often affect the respiratory, gastrointestinal, and/or neurological systems, while certain host species have shown signs of systemic disease. There are now six CoVs known to infect people. The upper respiratory tract disease coryza, cough, and sore throat are the most common symptoms of a moderate respiratory tract infection caused by human CoVs HKU1, NL63, 229E, and OC43. These viruses sporadically cause pneumonia, bronchitis, and other lower respiratory tract illnesses [3]. Middle East respiratory syndrome and severe acute respiratory syndrome, two recently discovered CoVs, on the other hand, cause a more serious lower respiratory illness that may be lethal (SARS-CoV).

Transmission from non-humans to humans: Dromedary camels are a significant reservoir host for MERS-CoV and an animal source of infection in humans, albeit the exact mechanism by which this virus spreads from animals to humans is still not entirely understood [4]. In a number of nations, including Egypt, Oman, Qatar, and Saudi Arabia, dromedaries have been found to harbour MERS-CoV strains that are identical to human variants. Human-to-human transmission: Unless there is intimate contact, such as while giving unprotected care to an infected patient, the virus does not spread easily from person to person. In healthcare settings, there have been clusters of cases where it appears that human-to-human transmission took place, particularly when infection prevention and control procedures are insufficient or inappropriate. Family members, patients, and healthcare professionals have all been recognized as possible human-to-human transmission recipients. A sustained human-to-human transmission of MERS has not yet been documented anywhere in the world, despite the fact that the bulk of cases have taken place in healthcare facilities.

Algeria, Austria, Bahrain, China, Egypt, France, Germany, Greece, Islamic Republic of Iran, Italy, Jordan, Kuwait, Lebanon, Malaysia, the Netherlands, Oman, Philippines, Qatar, Republic of Korea, Kingdom of Saudi Arabia, Thailand, Tunisia, Turkey, United Arab Emirates, United Kingdom, United States, and Yemen are among the 27 nations that have reported cases of MERS since 2012.

Saudi Arabia is where 80% of human cases have been documented. What is known is that diseased dromedary camels or infected people are the main sources of infection there [5]. The majority of cases discovered outside the Middle East involve travelers who contracted the disease there before departing for those regions. Rarely, outbreaks have taken place outside of the Middle East.

Currently seen as a pandemic threat to the Gulf region is the Middle East respiratory syndrome coronavirus (MERS-CoV), which in humans can produce a severe lower respiratory tract illness. MERS-CoV has spread to 23 countries since its 2012 discovery, infecting about 1100 people, including 12 children, and claiming over 400 deaths. MERS-CoV appears to kill more individuals (40% versus 10%) more quickly than SARS (severe

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Received: 01-Sep-2022, Manuscript No. CMO-22-18280; **Editor assigned:** 06-Sep-2022, Pre QC No. CMO-22-18280 (PQ); **Reviewed:** 22-Sep-2022, QC No. CMO-22-18280; **Revised:** 29-Sep-2022, Manuscript No. CMO-22-18280(R); **Published:** 06-Oct-2022, DOI: 10.35248/2327-5073.22.11.303.

Citation: Chughtai A (2022) Epidemiology and Characteristics of Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Clin Microbiol. 11:303.

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acute respiratory syndrome), and it is particularly severe in people with pre-existing medical issues.

More than 85% of the MERS-CoV cases that have been recorded so far had a history of living in or travelling to the Middle East. The epidemiology of today is characterised by sluggish, continuous transmission with sporadic sparks. The intermediate host of MERS-CoV is the dromedary camel; however the transmission cycle is not completely understood. We have succinctly summarised the most recent data on the epidemiology, clinical characteristics, diagnosis, treatment, and prevention of MERS-CoV in this review, focusing on the gaps in our understanding of its dynamics of transmission, diagnosis, and preventative measures.

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