

Letter to the Editor: Middle East respiratory syndrome coronavirus (MERS-CoV) in dromedary camels: are dromedary camels a reservoir for MERS-CoV?

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To the Editor:

In a recent issue of *Eurosurveillance*, we read the article by Nowotny et al. [1]. In this article, the authors concluded, based on phylogenetic analysis and a high Middle East respiratory coronavirus (MERS-CoV) load in nasal swabs of dromedary camels, that local zoonotic transmission of MERS-CoV from camels may be possible through the respiratory route. We would like to thank the authors for their contribution to the knowledge of MERS-CoV. However, we would like to report a few concerns regarding this study from a methodological point of view [1].

First, the authors suggested that the high viral load of MERS-CoV detected in nasal swabs may facilitate the zoonotic transmission through the respiratory route. However, in the study, the data on viral loads in dromedary camels were not described in greater detail and were only derived from testing nasal and conjunctival swabs for the virus. Additionally, the use of upper respiratory tract swabs instead of lower respiratory specimens may not give a complete picture of the infection, because the MERS-CoV load in upper respiratory tract specimens is reported to be less important than in lower respiratory tract specimens [2].

Second, while it is known that MERS-CoV can cause severe disease and even death in humans, and this infection has no prophylaxis or specific treatment [3], the authors did not give any detailed information about the respiratory route, in particular whether droplet or aerosol transmission may occur. This constitutes a limitation of this study not mentioned by the authors.

Last, contacts and risk of contagion between the 76 dromedary camels, from which the samples were taken, were not provided in detail in the article.

If the mode of transmission is not well known and not understood, clinicians should pay attention to implement the precautionary principles recommended by the Centers for Disease Control and Prevention (CDC)

as airborne precautions (the use of respirators rather than surgical masks), in addition to standard and contact precautions to reduce the risks of this infection until clarification of scientific certainty [4].

In previous studies, it was reported that MERS-CoV infection may be transmitted via respiratory droplets or direct and indirect contact with an infected person [5,6,7]. In addition, there has been international concern in the medical community about the risk of MERS-CoV to have a pandemic potential due to aerosol transmission. A recent study demonstrated that there was no evidence of MERS-CoV nasal carriage among Hajj pilgrims [2]. We agree with this study and believe that there is no aerosol transmission of this disease [2]. The result of other work has also shown that MERS-CoV survives in raw camel milk slightly longer than in milk of other species [8].

Among the Middle East countries with a desert climate, camels are still a major means of transportation and trade. The fact that camels may be a reservoir for MERS-CoV [1], and the possibility that camels could spread MERS-CoV infection with pandemic risk to other countries and regions unaffected by this virus, should be taken into consideration. Given the popularity of camel milk consumption and trade in these countries, it would be appropriate to take regulatory measures on import of camels and camel milk from endemic areas, due to the reasons mentioned above.

An issue here should not be misunderstood: previously on the Asian continent, millions of poultry were destroyed due to the pandemic risk of avian influenza A(H5N1) [9]. It is not intended to say that camels, which are claimed to be a reservoir for the disease and play an important role in supplying the basic needs of the people in countries with a desert climate, should be destroyed, but rather it is meant to say that precautionary measures to protect the animals and people should be taken.

In conclusion, MERS-CoV is an emerging pathogen with pandemic potential and with high risk of mortality. It is vital to take all possible preventive measures against MERS-CoV infection. Although in the Nowotny study [1] positive polymerase chain reaction (PCR) results showed MERS-CoV in five of 76 camels, an explicit assessment of the epidemiological role of camels has yet to be made to clarify the mechanism of emergence in humans. Further studies are required to better understand the transmission route and risks of this infection.

Conflict of interest

None declared.

Authors' contributions

Mustafa Hatipoglu investigated and found MERS-CoV data in literature. Ergenekon Karagöz evaluated and criticised these articles in literature. Vedat Turhan supervised all procedures.

References

1. Nowotny N, Kolodziejek J. Middle East respiratory syndrome coronavirus (MERS-CoV) in dromedary camels, Oman, 2013. *Euro Surveill.* 2014;19(16). pii: 20781.
2. Memish ZA, Assiri A, Almasri M, Alhakeem RF, Turkestani A, Al Rabeeah AA, et al. Prevalence of MERS-CoV Nasal Carriage and Compliance With the Saudi Health Recommendations Among Pilgrims Attending the 2013 Hajj. *J Infect Dis.* 2014; Apr 15. [Epub ahead of print]
3. Bermingham A, Chand MA, Brown CS, Aarons E, Tong C, Langrish C, et al. Severe respiratory illness caused by a novel coronavirus, in a patient transferred to the United Kingdom from the Middle East, September 2012. *Euro Surveill.* 2012; 17(40). pii: 20290.
4. Centers for Disease Control and Prevention (CDC). Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Atlanta: CDC. [Accessed 22 May 2014]. Available from: <http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html#infection-prevention>
5. Goh GK, Dunker AK, Uversky V. Prediction of Intrinsic Disorder in MERS-CoV/HCoV-EMC Supports a High Oral-Fecal Transmission. *PLoS Curr.* 2013;5.
6. Assiri A, McGeer A, Perl TM, Price CS, Al Rabeeah AA, Cummings DA, et al. Hospital outbreak of Middle East respiratory syndrome coronavirus. *N Engl J Med.* 2013;369(5):407-16. <http://dx.doi.org/10.1056/NEJMoa1306742>
7. van Doremalen N, Bushmaker T, Munster VJ. Stability of Middle East respiratory syndrome coronavirus (MERS-CoV) under different environmental conditions. *Euro Surveill.* 2013;18(38). pii: 20590.
8. van Doremalen N, Bushmaker T, Karesh WB, Munster VJ. Stability of Middle East respiratory syndrome coronavirus in milk [letter]. *Emerg Infect Dis.* 2014;20(7). [Epub ahead of print]. <http://dx.doi.org/10.3201/eid2007.140500>
9. Peiris JS, de Jong MD, Guan Y. Avian influenza virus (H5N1): a threat to human health. *Clin Microbiol Rev.* 2007;20(2):243-67. <http://dx.doi.org/10.1128/CMR.00037-06>