

Current Event

Risk Factors for MERS-CoV: A Matched Case-Control Study

Preliminary results of a study on the risk factors for Middle East Respiratory Syndrome (MERS-CoV) primary cases in Saudi Arabia have been published.

Editorial Notes

Risk factors for primary Middle East Respiratory Syndrome (MERS-CoV) in humans are incompletely understood. However, current evidence suggest that primary infections are related to animal contact. Exposure to camels have been observed in early cases of MERS-CoV infection. Also, several studies have detected partial genome sequences of MERS-CoV from dromedary specimens.

Using a matched case-control design with multivariable analysis, investigators found that direct exposure to dromedary camels during the 2 weeks before onset, diabetes mellitus, heart disease, and smoking were each independently associated with MERS-CoV illness.

During the 14 days before illness onset, case-patients were more likely than controls to have had direct dromedary exposure; to keep dromedaries in or around the home; or to have visited a farm where dromedaries were present. Among those who visited a farm where livestock were kept during the exposure period, case-patients were more likely than controls to have milked dromedaries. Case-patients also were more likely than controls to live in the same household as someone who had visited a farm with dromedaries during the previous 14 days and had direct contact with a dromedary while there (Table 1).

Multivariable analysis yielded a final model in which direct dromedary exposure in the 2 weeks before illness onset was associated with MERS-CoV illness, along with having diabetes or heart disease or currently smoking tobacco.

Limitations of the study include delay between illness and interviews (recall

Table 1: Summary of risk factors for MERS-CoV: results of a matched Case-control study

Risk Factor	Odds Ratio(95% CI)
Heart disease	5.1 (1.8–15.5)
Diabetes mellitus	3.7 (1.5–10.3)
Being a current smoker	3.1 (1.1–9.2)
Exposure to camels during the 14 days before illness onset:	
Visited a farm where dromedaries were present	11.57 (CI 2.67–∞)
Milked dromedaries	10.36 (2.47–∞)
Direct physical contact with camels within last 6 months	7.67 (2.10–36.08)
Direct exposure to cattle	6.00 (1.02–48.44)
A household member had direct contact with camels	5.03 (1.66–16.88)
Lived with a household member who visited a camel farm	3.95 (1.23–13.72)
Direct exposure to dromedary camels	3.73 (1.24–11.80)
Keeping dromedaries in or around home	3.34 (1.04–10.98)

Cases of MERS-CoV: International Week (IW) No. 46: 9–15 Nov 2015

Total	1
Symptomatic (S)	1
Asymptomatic (AS)	0
Healthcare worker (S)	0
Healthcare worker (AS)	0

bias) and ascertainment of exposure (reliability) as interviews were conducted by different teams at different times in different areas in Saudi Arabia and some depended on proxy interviews (i.e. information was collected from a family member). Other limitations include the possible effect of over-matching, reduced power to detect differences from controls and potential misclassification. The investigators did not examine dromedary husbandry practices or determine whether dromedaries were infected with MERS-CoV. Additionally, the current MERS-CoV surveillance system in Saudi Arabia is more likely to detect persons with severe MERS-CoV illness, who in turn may be more likely to have underlying conditions.

Infection Prevention and Control Guidelines for Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Infection 3rd Edition June 2015

<http://www.moh.gov.sa/en/CCC/StaffRegulations/Corona/Documents/IPC%20Guidelines%20for%20MERS-coV%20Infection.pdf>

Recent Publications:

Victor M. Corman, Ali M. Albarrak, Ali Senosi Omrani, Mohammed M. Albarrak, Mohamed Elamin Farah, Malak Almasri, Doreen Muth, Andrea Sieberg, Benjamin Meyer, Abdullah M. Assiri, Tabea Binger, Katja Steinhagen, Erik Lattwein, Jaffar Al-Tawfiq, Marcel A. Müller, Christian Drosten, and Ziad A. Memish, Viral shedding and antibody response in 37 patients with MERS-coronavirus infection, *Clinical Infectious Diseases* 2015 : civ951v1-civ951

MERS-CoV in KSA 2015*

Region	Case	Primary	Secondary	U.C.
Riyadh	293	101	184	8
Al-Ahasa	56	11	41	4
Eastern Region	21	10	11	0
Jeddah	17	9	7	1
Qassim	15	9	6	0
Najran	14	9	5	0
Taif	11	8	3	0
Madinah	7	1	6	0
Asir	4	2	2	0
Tabuk	4	4	0	0
Makkah	3	3	0	0
Hail	2	1	1	0
Al-Joaf	2	2	0	0
Jazan	1	1	0	0
Northern Borders	1	1	0	0
Qunfotha	1	1	0	0
Al-Baha	0	0	0	0
Bisha	0	0	0	0
Hafr Al-Batin	0	0	0	0
Qurayyat	0	0	0	0
Total	452	173	266	13

Case: Confirmed Symptomatic. U.C. : Unclassified cases

*Period: Form 29 Dec 2014 to 15 Nov 2015

