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Searching for the potential reservoir of MERCoV in positive dromedary camel populations

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iddle East respiratory syndrome corona-virus (MERSCoV) is one of the major health concerns not only in Saudi Arabia Lbut also worldwide. This is due to the high morbidity and mortality among the affected people up to 60%. We have recently reported the presence of neutralizing antibodies in sera of dromedary camels in different regions of Saudi Arabia. We also reported for the first time the complete genome sequencing of MERSCoV from camels and deposited these sequences in the gene bank. Viruses isolated from camels are quiet identical to that of human moreover, camel viruses are able to replicate in human cells of respiratory origins both in vitro and ex vivo model. However, the exact mechanism of transmission from camels to human is still unidentified. There might be other options such as presence of unidentified intermediate host or insects that complete the circuit from dromedary camels to human. To test this hypothesis, we selected one farm previously which showed the presence of the virus last year. Samples have been collected from different birds which live close to this dromedary camel herd such as doves, sparrow as well as from mites, ticks, ticks, mosquitoes, flies. Swabs and sera were collected from the indicated birds as well as from camels. Total RNAs were collected from the indicated birds as well as from flies, mites, ticks and mosquitoes. Detection of the virus was done by the standard real time PCR kits using the RDRP primers and probes. Detection of the viral antibodies was done by the Pseudo virus particle neutralization assay. Our results showed that the only animal showing neutralizing antibodies to MERSCoV are dromedary camels whereas, none of the tested sera from other species showed any titer for MERS. Meanwhile, swabs from tested birds, flies and mosquitoes were negative as well. These results suggested that transmission of MERS is much more complicated than expected. We suggest the continuous search for the intermediate host of MERs among other species of animals and birds or even rodents and bats. Further studies are currently in progress to explore the potential roles of camels in the transmission of MERS as well as the possibility of other intermediate hosts if any.

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