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Middle East Respiratory Syndrome Coronavirus, an Emerging Zoonosis: 2022 Surveillance in One-Humped Camels in Nigeria

Inhalt

Middle East Respiratory Syndrome Coronavirus (MERS-CoV) is a significant zoonotic virus that the World Health Organization (WHO) has classified as a priority pathogen due to its potential to cause epidemics. As of April 2025, an estimated 2,627 lab-confirmed cases of MERS-CoV, with at least 946 deaths across 27 countries, have been reported. Given Nigeria's porous borders and the transboundary movement of animals, the country is at risk for the transmission of zoonotic diseases, including MERS-CoV. From May to October 2022, we conducted a survey of slaughtered camels, collecting blood, nasal swabs, and tissue samples (n = 454 each; females n = 405; males n = 49) at the Kano abattoir in northwestern Nigeria. We analyzed the sera for MERS-CoV-specific antibodies using the EUROIMMUN® Anti-MERS-CoV ELISA kit and virus neutralization test (VNT). Nasal swabs and tissue samples were tested using an RT-qPCR assay, followed by sequencing. High MERS-CoV antibodies were detected by ELISA (74.8%) and VNT (95.5%). The seropositivity rate was higher in female camels (87.9% by ELISA) compared to male camels (12.0%, P > 0.05). MERS-CoV RNA was detected in 5.0% of nasal swabs and 3.7% of tissue samples. Phylogenetic analysis of the spike protein revealed a 99.9% nucleotide identity with Ethiopian strains, clustering within clade C. These findings confirm exposure of dromedary camels in Nigeria to MERS-CoV, highlighting the need for continuous monitoring using a One Health approach and increased awareness in at-risk groups.

Keywords

Abattoir, Dromedary camel, ELISA, MERS-CoV, Nigeria, VNT

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Yes, I am a Junior Scientist.

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None