CROSS-SECTIONAL, LONGITUDINAL AND PROSPECTIVE EPIDEMIOLOGICAL STUDIES OF RIFT VALLEY FEVER IN AL-HASA OASIS, SAUDI ARABIA

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Rift Valley Fever (RVF) is a disease affecting ruminants and humans in many countries of the African continent, and was reported for the first time in 2000 in the south-west region of Saudi Arabia, and north-west region of Yemen. In Saudi Arabia, RVF was not reported outside the south-west region. However, its situation outside the affected region is not properly and scientifically clarified. In this investigation cross-sectional and longitudinal serological studies were conducted on domestic ruminants in Al-Hasa Oasis - east of Saudi Arabia, to clarify the freedom or presence, prevalence, and distribution of Rift Valley fever (RVF). A total of 598 serum samples were collected from sheep (225), goats (102), cattle (242), and camels (29) during the year 2007. Enzyme-linked immunosorbent assay (ELISA) was used to detect the presence of anti-RVF IgG and IgM antibodies in sheep, goats, and cattle sera. Camels’ sera were tested for the presence of anti-RVFV antibody by isotype-nonspecific inhibition ELISA (iELISA). Two out of 598 (0.3%) sera were IgG, but not IgM, seropositive, other samples were IgG and IgM seronegative. Both seropositives were ewes, more than three years old, and located about 45 kilometers apart. For the longitudinal study a single sentinel herd of 40 sheep were established in the Oasis. These animals were subjected to daily clinical observation and monthly blood sampling. This investigation lasted 35 month starting August 2005. Sera from the blood samples were tested for the presence of IgG using the ELISA technique. There were no clinical signs observed on the animals that may suggest RVF. Sera testing also failed to detect IgG against RVF virus.

The low intra-herd seroprevalence, the scattered distribution of the two seropositive samples, and the absence of RVF-incidence in the sentinel herd, all suggest that the two seropositive animals were introduced from outside of the Oasis. Therefore, this study confirms that Al-Hasa oasis is free from RVF. However, the readiness of animals in the region to RVF outbreak is possible.