

Alkhumra, Not Alkhurma, Is the Correct Name of the New Hemorrhagic Fever Flavivirus Identified in Saudi Arabia

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Sir,

We have the following comments on the paper published by Alzahrani et al. [1].

(1) The authors claim that the virus was named Alkhurma because the first case was reported from the Alkhurma governorate. They cited a reference that actually did not mention Alkhurma city while it clearly mentioned that the first 6 cases were butchers from Jeddah where Alkhumra district and not Alkhurma city is located [2]. The original publication that reported those same cases also described them as being from Jeddah and not from Alkhurma city [3]. According to the official reports from the Ministry of Health of Saudi Arabia, the first 6 cases were indeed from 'Alkhumra' district, a southern district in Jeddah that has been the location of livestock marketplaces and slaughterhouses, the characteristic environmental risk factors for acquiring this virus [4, 5]. Following re-identification of the virus in Makkah by Madani in February 2001, the Ministry of Health circulated a memo to all health sectors to alert them of this new virus and tentatively referred to it as *Alkhumra virus (ALKV)* for the first time [4, 5]. Subsequently, in August 2001, Zaki (a non-Saudi virologist working in Saudi Arabia), who received the aforementioned memo from the Ministry of Health in

April 2001, published with Charrel et al. [6] a paper describing the complete coding sequence of this virus, unfortunately mistakenly naming it Alkhurma not Alkhumra due to a transpositional typographical error where the 'm' and 'r' were reversed. The new name Alkhurma, erroneously now assigned to this virus in a number of other reports, refers to a small city, 280 kilometers from Alkhumra district in Jeddah and has had, to this point, nothing to do with this virus. All reported cases of ALKV identified to date in Saudi Arabia have been from Alkhumra/Jeddah, Makkah and more recently from Najran [4, 5].

(2) The authors erroneously cite that 37 suspected ALKV hemorrhagic fever cases, that included 20 laboratory-confirmed cases, were from Alkhumra district, south of Jeddah; the citation clearly described these cases as being from Makkah [4].

(3) The authors used the case definition for suspected ALKV infection developed by Madani without referring to the source [4].

(4) A comprehensive prospective epidemiological study in Najran for the period 2003–2009 published recently by us showed that only 3 (3.8%) out of 78 laboratory-confirmed cases of ALKV infection

had a history of tick bites [5]. This figure stands in clear contrast to the figure (10 out of 28 patients or 36%) indicated by Alzahrani et al. bearing in mind that all the 28 cases described by Alzahrani et al. were included in our study. This difference is likely due to errors in recalling history retrospectively. Therefore, the conclusion made by Alzahrani et al. that ticks were important vectors for transmitting the virus cannot be accepted.

(5) Alzahrani et al. concluded that mosquitoes were not important in the transmission of the virus as there was no difference in the proportion of ALKV patients having a history of mosquito bites compared to the case-control group. This conclusion is not really valid since a case-control study is not the appropriate study design to draw such a conclusion from as the whole population in Najran lives in the same social and environmental conditions, including exposure to mosquitoes. Further field studies to demonstrate the presence of ALKV in various vector species and laboratory studies to confirm the vector specificity of vectors which are carrying the virus are the definitive ways to determine the true vectors involved in the transmission of ALKV.

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(6) The authors were correct in determining the immune status of individuals who were considered *ALKV* case patients, but the use of the term case patients in the report is somewhat confusing. Clearly, 11 of these patients had the disease and were case patients, but the remaining 17 were not truly case patients (although 4 were reported as having some symptoms compatible with *ALKV* disease). The report mentions that IgG status of the individuals was used to classify them as case patients in those instances in which serology rather than RT-PCR was used to identify their

past infections. The IgG assay does not allow a temporal association of the past infection with a more recent *ALKV* infection as a positive IgM finding would have. This raises two issues about the design of the case-control study: (a) the methods state that case patients were questioned about the risk factors for the 30-day period prior to the onset of their disease (though 17 reported no illness) and controls were questioned for the 30 days prior to the administration of the questionnaire; (b) the real possibility that some of the serologically identified individuals had been infected in

the quite distant past and the fact that they are questioned about recent events (30 days before the onset of illness) does not allow collecting information about the risk in the period prior to their actual past *ALKV* infection.

Disclosure Statement

The authors have no conflicts of interest to disclose.

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