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# Sexual transmission of Zika virus: implications for clinical care and public health policy

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Dear Editor

Zika virus (ZIKV) - a flavivirus transmitted primarily by *Aedes* mosquitos (predominantly *A. aegypti* in urban and periurban cycles) - has been spreading rapidly for the first time across the Western Hemisphere, where more than 30 countries had reported autochthonous transmission.[1] Due to its probable causal relationship with microcephaly and other neurologic syndromes, the World Health Organization declared that the current ZIKV outbreak in Americas represents a Public Health Emergency of International Concern.[1] Non-vector transmission routes, especially sexual contact , has been described but its impact during an epidemic and in non-epidemic settings remains largely unknown. Here we discuss ZIKV sexual borne transmission and the impact on clinical practice and public health policies.

To date, ZIKV transmission through sexual contact was documented in 9 cases.[2-5] All of them were acquired from symptomatic males (median age 30 years) who had travelled to regions where ZIKV was circulating. Infectious semen ZIKV particles were recovered in cell culture in 2 instances.[6,7] The longest that the virus was detected by polymerase chain reaction (PCR) in semen was 62 days after the onset of symptoms,[8] demonstrating that a much larger infectiousness period possible through this route exist as compared by the viremia duration, that usually does not surpass seven days. Detection was possible in convalescent-phase semen samples long after clearance of acute viremia. Two out 9 cases reported hematospermia.[3,7] The presumed mode of transmission involved unprotected vaginal intercourse with the patients' female partners, some of them pregnant. All women developed acute ZIKV illness shortly after sexual contact with posterior confirmation of infection through serum PCR or plaque neutralization serology. Transmission of ZIKV through sexual contact has resulted in locally acquired cases in three countries where vector transmission is extremely unlikely to occur (United States of America, France, and Italy).[1]

The spread of ZIKV through sexual contact has several implications. First, detection of ZIKV RNA in semen at high concentration and later in the disease course may be of interest for diagnostic and transmission control interventions. Viremia is short lived (approximately 7 days after disease onset) and of low level, differently from the long lived high level presence of viable virus in semen.[8,9]. Second, it adds complexity to the traditional prevention paradigm from vector-based model by addition of sexually transmitted infection-model (i.e.; abstinence, condoms, sexual education). However, we do recognize that in the ongoing ZIKV epidemic in Americas, transmission is primarily driven by *Aedes* sps, but sexual contact could, at least, explain transmission from travelers who had been in areas of active ZIKV

epidemic and went back to their countries. This makes it very difficult to measure the contribution of alternative transmission routes in places where vector transmission is intense. Third, the persistence of ZIKV in semen may pose a risk of transmission for healthcare providers involved in the management of severe ZIKV cases, especially when performing urogenital manipulations. Finally, ZIKV genital shedding may trigger a change in protocols for gametes preservation and conservation in semen banks.

We understand that more research is clearly needed to better define the prevalence and duration of genital shedding. Furthermore, it is unknown if infected females also transmit through sexual contact to their partners. Until more data emerge we suggest that ZIKV should be perceived as a potentially sexually transmitted infection with wider implications for clinical care and public health. A more consistent evidence will probably need integrating findings from countries with and without active vector transmission, combining evidence from duration of virus in biological fluids and creative ways of measuring its contribution to transmission through epidemiology and modelling studies.

NOTES

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Conflicts of interest

On behalf of all authors, the corresponding author states that there are no conflicts of interest relevant to this manuscript.

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