Ebola virus persistence in semen


A recent paper published online reported an investigation, carried out in Sierra Leone on semen from Ebola virus disease (EVD) survivors collected up to 1016 days after disease onset, to detect Ebola virus (EBOV) RNA. Thirteen out of 149 (9%) tested survivors had at least one positive sample and in 8% EBOV RNA was detected over two years after the onset of their infection (up to 965 days from EVD onset). Detection of EBOV RNA was observed to be intermittent in 8 of the tested survivors.

Comment

After the end of the last Ebola outbreak in Democratic Republic of Congo [2] and the knowledge that even the last episode of Ebola-like illness reported in Uganda [3] seems not to be due to a Haemorrhagic Fever virus infection, researchers and public health authorities continue to pay much attention to what concerns Ebola virus disease. New results have been recently published on the persistence of EBOV RNA in semen, as reported by Fischer WA II et al. in Open Forum Infect Dis [1].

The investigation has been carried out in Sierra Leone using the Cepheid Xpert Ebola Assay, a fully automated method for the detection of EBOV RNA, using disposable, self-contained cartridges that include all components for nucleic acid extraction, amplification and detection. Very limited to no data to support the use of this assay in matrices different from blood, serum of plasma were available until Petitt et al. recently published a modified procedure for nucleic acid extraction [4].

Another study attempted to correlate the presence of EBOV RNA with the presence of replication-competent virus using a SCID mouse model for infectivity studies [5]:

“The results indicate shedding of infectious virus particles in seminal fluid for up to 200 days after disease onset, which suggests active virus replication at the site of persistence.”

That survivors can shed Ebola RNA for a long time after disease onset is a cause for worry and has important implications for public health.

Experimental data are supported by the report of a probable sexual transmission of the virus from a male survivor more than 500 days after onset of disease [6] as well as from the knowledge that Ebola virus might persist in immunologically privileged sites as the CNS [7] and the eyes [8].

The clinical relevance of ongoing low-level virus replication in the male reproductive tract is unclear and further investigation into the mechanisms of EBV persistence and infectiousness at these and other host sites is needed to develop medical countermeasures that ensure its complete elimination from the host.

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References

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