RBMO

LETTER

COVID-19: should we continue to cryopreserve sperm during the pandemic?

Viremic patients can shed viruses into semen, with 27 viruses detected to date (*Salam and Horby, 2017*). This includes the Zika virus, which remains in the semen of symptom-free men for up to 1 year post-recovery (*Kurscheidt et al., 2019*).

Virus shedding into semen is affected by the reproductive tract immune response, inflammatory mediators altering the blood-testis barrier, systemic immunosuppression and the virus structural stability (*Salam and Horby, 2017*). For COVID-19-positive men, we consider the risk of significant virus shedding into semen is low, given that only very low titres of SARS-CoV-2 have been detected in non-respiratory sites, e.g. stool specimens (*Holshue et al., 2020*). However, is 'low' an acceptable risk if we are to cryopreserve semen samples during the pandemic?

Most viruses remain viable at ultra-low temperatures if stored dried, in appropriate protein concentrations (*Gould, 1999*). For example, the influenza virus can remain infectious even after 40 years in cryopreservation (*Merrill et al., 2018*). Both the influenza virus and SARS-CoV-2 are enveloped RNA viruses, so SARS-CoV-2 could also remain viable if cryopreserved and then warmed.

On a positive note, to date, there has never been a recorded case of viral cross-contamination between cryopreserved clinical semen samples, so the risk of SARS-CoV-2 cross-contamination between semen samples is negligible. However, we have to accept that SARS-CoV-2 could be present in semen samples and in liquid nitrogen in cryostores across the world. We therefore recommend that utmost precaution be exercised for sperm cryobanking at this time, with use of highly secure devices and segregated cryovessels. The risks associated with couriering cryopreserved samples between clinics, during and after this pandemic, should also be considered.

Michael Bright Yakass[1]
Bryan Woodward[2,*]

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[1] West African Centre for Cell Biology of Infectious Pathogens, University of Ghana and Assisted Conception Unit, Lister Hospital and Fertility Centre, Accra, Ghana
[2] X&Y Fertility, Leicester, UK

*Corresponding author. E-mail address: theeggman68@gmail.com (B. Woodward). https://doi.org/10.1016/j.rbmo.2020.04.004 1472-6483/