



A recommendation for IVF lab practice in light of the current COVID-19 pandemic

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A global health threat has been declared by the World Health Organization due to the recent outbreak of COVID-19. Although the exact transmission mechanism is yet unknown, it is known that people positive to the virus are contagious due to small aerosols spreading. According to Adrian [1], a virus in a thin layer of (1 µm) of water will vitrify upon cooling into liquid nitrogen (LN). Furthermore, Bielanski [2] has demonstrated that viral contamination of embryos cryopreserved in LN raises real threat. This data is a cause for concern regarding the current cryo-storage practice in IVF labs. If aerosol drops containing virus touch LN, they will vitrify and contaminate the LN. Four possible scenarios may be possible: (1) vitrified drops can contaminate sperm, oocytes, or embryos which are cryopreserved by open system vitrification, and also, the virus could be transferred to the patient following warming; (2) it can cross-contaminate samples with ACE-2 receptor such as ovarian and testis tissues [3, 4]; (3) it may contaminate the operator upon warming; and (4) it may not cause any contamination if the number of viral load is low or if the virus does not survive.

In order to overcome the above scenarios, several solutions may be applicable: (1) The use of closed system vitrification systems incorporating CBS straws or other systems [5]. (2) The use of sterile LN and vapor storage [6]. (3) Another option is the use of UV sterilization of LN [7] or the use of sterile liquid air for cooling and storage [8]. Finally, if it is true that 15–26% of SARS-CoV-2 patients present the virus in their semen [9], then washing, separation, and storage (quarantine) in a separate container or in special canister [8] should be done as safety measures.

Until properties of viruses like SARS-CoV-2 are fully investigated with respect to the interaction with LN and

reproductive cells and tissues, cautionary measures as those mentioned above should be taken under serious advisement.

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