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Reply: Risk of contamination with SARS-CoV-2 in ART

Sir,

We thank Vajta *et al.* (2022) for raising an important point regarding the conclusion of our manuscript (Kteily *et al.*, 2022). Out of the context of the paper, we agree that the sentence 'no additional measures to prevent staff or cross-patient contamination need to be implemented in the IVF and andrology laboratories' could be considered as too reassuring in the general context of the pandemic. In our discussion, we discussed the need for the implementation of additional procedures for asymptomatic patients, assuming that all IVF centers already apply the 'good manufacturing practice' principles, independently of the COVID-19 pandemic (www.eshre.eu/guidelines).

The risk of cross-contamination during ART procedures, including the risk of accidental or external contamination of liquid nitrogen (LN₂), is present for many viruses and is extensively discussed in the literature. However, we would note that the use of sterile LN₂ and straw decontamination before semen warming mentioned by Vajta *et al.* are considered as 'other precautions that can be taken to avoid or limit contamination' if standard precautions such as the use of high secure straws or vapor N₂ cannot be secured (World Health Organization, 2021). Similarly, Pomeroy and Schiewe (2020) suggested the use of UV disinfected LN₂ in case of open devices systems. Finally, the opinion paper published by international laboratory managers actually questioned the use of sterile LN₂ for sample washing at warming (Hickman *et al.*, 2020).

Nevertheless, we agree that the risk of contamination of LN₂ through SARS-CoV-2 survival on surfaces and aerosol remains uncertain and requires further investigation. To reduce this risk, prevention measures have been implemented in all health institutions, including IVF centers, to reduce the risk of patients–staff and staff–staff contamination. Several scientific societies including ESHRE provide guidance regarding sanitary measures in IVF clinics. ESHRE published recommendations on triage questionnaire and testing strategies with updates according to the pandemic evolution as well

as general sanitary measures such as the room disinfection procedures, distancing and the wearing of masks and gloves (<https://www.eshre.eu/Europe/Position-statements/COVID19>). Regarding IVF laboratory activities, the main principle is to strictly follow good laboratory practice (www.eshre.eu/guidelines) such as the use of high security straws and/or vapor phase storage tanks and pay particular attention to reduce exposure to native follicular fluid and sperm as much as possible by dilution and by using of individual closed containers (<https://www.eshre.eu/Europe/Position-statements/COVID19>). Our study confirmed that no additional measures should be taken to insure the safely handling of human material from asymptomatic patients in the IVF laboratory.

Conflict of interest

A.D. and I.D. received a grant from Ferring for the study.

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