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Oral Presentations

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Debates on COVID-19 presence in semen: A systematic review

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Background: Coronavirus disease 2019 (COVID-19) is a challenge not only for survival and being alive, but probably for ability to have a child. This concern is more exacerbated for men, because sex differences susceptibility has been reported for men and men are more prone to COVID-19. Also, orchitis is reported in autopsy of men, which may be due to the highly expression of ACE2 in testicular cells.

Objective: Some studies have reported the real time polymerase chain reaction (RT-PCR) detection of virus in semen of men, affected by COVID-19; while, others did not confirm these data. So, the aim of this study was a systematic review of published data regarding the detection of SARS-CoV-2 virus in semen.

Materials and Methods: The literature search was performed in PubMed, Scopus, and Google scholar based on the following key words: ["severe acute respiratory syndrome-coronavirus 2" OR "COVID-19", OR "2019-nCoV", OR "SARS-CoV-2", OR "severe acute respiratory syndrome coronavirus 2" OR "SARS CoV2" OR "SARS CoV 2"] AND ["semen" OR "sperm" OR "testis" OR "testicles" OR "seminal" OR "testes" OR "male reproduction" OR "orchitis"

OR "testicular" OR "male fertility" OR "male infertility" OR "epididymis" OR "prostate" OR "testosterone" OR "DHT" OR "dihydrotestosterone" OR "azoospermia". All published papers were screened from December 2019-december 2020. The literature search was conducted by manual screening of the titles and abstract. The full text of studies that detected the virus in semen by RT-PCR and RT-qPCR were reviewed.

Results: 10 papers published from April-December 2020 were suitable. one paper reported that 6.66% of cases (6 of 38) tested positive for virus in semen. Among them, 2 recovered and 4 patients (15 ≥ years) in acute phase were positive. Nine other studies reported that the semen samples were negative for detection of virus RNA in semen which were as follows. Song, Wang colleague tested semen and testicular biopsy of 12 young recovered patients (11 patients with mild symptoms, 1 asymptomatic and 1 patient in acute phase) and testis biopsy achieved from 1 dead patient. Xiao colleague collected semen samples from 34 Chinese men (18-57 yr) with generally mild symptoms and 6 patients (19%) developed scrotal discomfort. Pallotti colleague checked one 31-yr-old man, 8 days after positive pharyngeal swap. Ning, Li colleague also analyzed 17 patients with aged 23-46 yr. They showed symptoms or signs related to male reproductive system. Zhao colleague evaluated 23 patients in recovery phase. Nora, Philippos colleague tested 18 patients, 8-54 days after absence of symptoms and 2 samples from patients with active infection. Temiz, Dincer colleague tested 55 patients, 18 to 60-yr old. Li, Xiao colleague tested 23 patients, aged above 18 yr. Ruan, Hu colleague analyzed 74 men, aged 20-50 yr. All these 9 studies reported negative results in different age categories and different COVID-19 phases.

Conclusion: The detection of CIVID-19 in semen was noted and the possibility of male factor infertility and sexual transmission should not be neglected.

Key words: COVID-19, SARS-CoV-2, Testis, Sperm, Semen.