

COVID-19 and Semen: An Unanswered Area of Research

Amir H Kashi

*Correspondence: Urology and Nephrology Research Center (UNRC); Shahid Labbafinejad Medical Center; Shahid Beheshti University of Medical Sciences (SBMU), Tehran, Iran. Email: ahkashi@gmail.com.

The COVID-19 has infected more than 2 million patients in the world including more than 200 countries and killing more than 180000 patients according to WHO's situation report number 95 released on April 24th, 2020⁽¹⁾. This outstanding global pandemic has occurred in less than 4 months since its announcement by the Chinese government in December 2019.

The vast number of infections and the spreading pattern of infection has caused concerns over many health aspects of COVID-19 which were overlooked for the earlier outbreaks of its family namely SARS and MERS.

The latest researches report that the most infectious bodily fluids are nasopharyngeal, nasal, and lower respiratory tract secretions⁽²⁾. The virus has also been detected in feces and a lower infection percentage has been reported in blood. There are reports on the presence of COVID-19 in the urine of infected patients⁽³⁾; however the percentages reported are much lower in comparison with SARS and MERS and have been reported only in limited studies, with most studies failing to report the presence of virus in urine. There is another potential area of concern which has not been addressed for the COVID-19 infection: "the presence of COVID-19 in semen". The presence of viral particles in semen has neither been investigated earlier for the previously reported outbreaks of SARS and MERS⁽⁴⁾. The importance of such investigation lies in the low reported rate of viremia in blood for COVID-19⁽²⁾ which makes the possibility of viral spreading to body organs including genital organs and its later secretion into genital secretions. The presence of ACE2 receptors which function as binding sites for COVID-19 has been reported in testis tissue and genitourinary organs^(5,6). The earlier reports of SARS and MERS reported persistence of virus in urine and feces after patients convalescence and clearance of virus in nasopharyngeal secretions⁽⁷⁾ raising concerns for viral spreading through these routes after patient improvement and his/her return to social activities.

Apart from the concern of viral shedding in semen, there are other concerns in infertility clinics on the possibility of the presence of COVID-19 in semen. The potential for viral transmission in assisted reproductive techniques including sperm donation should be clarified as this pandemic seems to be staying for long. In Iran, infertility clinics has been suspended from providing service to new patients. Besides, we need to know about the presence of virus in semen to set standards of protective equipment needed in infertility clinics and laboratories working on semen samples.

The importance of such investigation lies in the vast majority of patients who show little or no symptoms and recover from COVID-19 infection who constitute 80% of infected patients. The symptomless patients are a potential reservoir of infection transmission. In order to have hard evidence for answering the above concerns we need studies exploring the presence or absence of COVID-19 in semen samples of patients within different periods of their infection. The only published study on this respect has included semen samples from day 14 of the illness afterwards⁽⁶⁾. No study has reported semen evaluation in the first 2 weeks of infection. We look forward to such studies.

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