**Investigation the impact of covid19 infection on ART(ICSI) outcome in infertile couples referred to Royan Research Institute.**

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**Background**: Corona disease was first identified in Wuhan, China in 2019 and quickly became a global pandemic. Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) causes corona and mild to severe infections of respiratory tracts. Spike proteins project from the surface of this RNA virus and resemble a corona appearance. Due to the COVID-19 pandemic, many researches have focused on the effects of SARS-CoV-2 virus infection. Researchers believe that the infection of COVID-19 causes serious damages to various organs, including the reproductive system. In the present study, the effects of SARS-CoV-2 infection on ICSI outcomes of infertile couples referred to Royan Institute were investigated.

**Materials and methods**: 120 infertile couples who had referred to Royan Institute for a cycle of microinjection at a certain time (August 2019 to March 2022) and met the criteria for entering the study were selected. Information was collected through a questionnaire filled by couples and their medical records. Therefore, 30 couples with a history of infection with COVID-19 as case group were compared with a control group consisting of 60 couples without a history of infection or vaccination of COVID-19. Ovarian, spermatic, embryonic variables, pregnancy outcomes, live birth and abortion rate were compared between different groups by using SPSS software.

**Results**: Ovarian parameters; antral follicles count at the beginning of the cycle, the number of retrieved cumulus oocyte complexes, the number of mature and immature oocytes and 2PN zygotes were compared between control and infected groups and no significant difference were observed. Also, the sperm concentration and morphology didn’t affect by SARS-CoV-2 infection. It is noteworthy that sperm motility and progressive motility is significantly reduced in infected group compared to the control group. Embryonic parameters; embryo number, embryo grade, pregnancy outcomes after embryo transfer including primary results of biochemical and clinical pregnancy (observation of gestational sac and fetal heart rate) and the miscarriage rate was not significantly different between infected and control group, albeit SARS-CoV-2 caused significant reduction of live birth rate.

**Discussion**: According to our knowledge, this research is among the first studies which has investigated the effect of SARS-CoV-2 infection on ovarian, sperm and embryonic parameters as well as live birth and miscarriage rates. As it was suggested that delay IVF treatments for at least 3 months after COVID-19 recovery to achieve better results, so we considered 106.2 days (more than three months) after infection recovery. Although the recovery time was passes, sperm motility and progressive motility decreased significantly because of SARS-CoV-2 infection that seems effect on natural pregnancy.