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Editorial

## **The COVID-19 pandemics: shall we expect andrological consequences? A call for contributions to ANDROLOGY**

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The coronavirus 2 (SARS-CoV-2) pandemic represents and will represent the greatest health, economic and social crisis of the new millennium. According to the World Health Organization (WHO) report published on April 14, 2020, the pandemic SARS-CoV-2 affects 213 countries worldwide, with 1,848,439 infected patients and 117,217 confirmed deaths (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>) to this date. Men are much more prone to become seriously ill than women. Fortunately, the majority of men, especially in younger age, survive the infection.

From a medical point of view, there is no doubt that most problems related to the reproductive system can be postponed in the face of the urgent and acute medical care required by the current situation. But what do we know about the andrological consequences of SARS-Cov-2 infection and what should we expect?

The severe acute respiratory syndrome related to SARS-CoV-2 it is the final and, probably, most serious step of the virus infectious process. The viral entry into target cells depends on the SARS-CoV-2 spike (S) protein and requires S protein priming by cellular proteases, allowing fusion of viral and cellular membranes<sup>1</sup>. SARS-CoV-2 engages angiotensin-converting enzyme 2 (ACE2) as the entry receptor<sup>2,3</sup>, and employs the transmembrane protease, serine 2 (TMPRSS2) for S protein priming<sup>4,5</sup>. The virus/ACE2 interaction has been previously demonstrated at the atomic resolution level for the SARS-CoV transmissibility<sup>6,7</sup> and, since SARS-CoV and SARS-CoV-2 share 80% sequence identity<sup>8</sup>, SARS-CoV-2 could use a similar entry mechanism, possibly with even higher ACE2 affinity compared to SARS-CoV<sup>9</sup>. Therefore, every tissue in the human body expressing the ACE2 receptor could be targeted and damaged by the infection, including testis<sup>10</sup>, Leydig cells<sup>11</sup> and seminal fluid<sup>12</sup>. The ACE2 receptor seems involved in spermatogenesis, mainly influencing sperm maturation and spermiation<sup>12</sup>. Finally, several cases of orchitis have been described in the presence of SARS-CoV, although the virus itself was not isolated in the testicular tissue<sup>13</sup>.

Given this background, there are a number of andrological questions related to the COVID-19 epidemics that require a scientific answer: Why are men more susceptible than women? Does the virus pass the blood-testis barrier and is it found in the seminal fluid? Is there any effect on androgen production? Does SARS-Cov-2 infect the testis and, if yes, with what consequences? What are the effects of the virus and virus-related issues (asymptomatic infection, isolation, quarantine) on sexual function, sexual behaviour and reproduction at large?

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Another question related to this new medical emergency is that medical interventions considered non-essential health care procedures, such as certain andrology treatments, are now suspended. However, there are interventions that cannot be postponed and patients may need interventions also in times of COVID-19, e.g. semen cryopreservation before cancer therapy. All these aspects require consideration, thoughts and research.

Many andrologists worldwide are concerned about the consequences of SARS-CoV-2 infection for their patients, and are asking the journal to be the platform for scientific discussion. We think that ANDROLOGY is the right forum for any type of sound scientific contributions about all andrological aspects of the COVID-19 epidemics. Therefore, we would like to invite submissions of Clinical and Basic Research Articles, as well as Opinion Articles on this very actual and relevant topic. Every contribution will be subjected to peer review as any article submitted to the journal and, if accepted, will be immediately available online as Accepted Article.

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