

COVID-19 and impact on urogenital system: a systematic literature review

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INTRODUCTION

COVID-19 is accompanied by multiorgan disfunction. Virus enters the target host cells via the angiotensin-converting enzyme 2 (ACE2) and causes viral pathogenicity and organ damage. It is reported that ACE2 are expressed in kidneys and male genitalia organs.

METHODS

We performed a systematic literature study in Pubmed, Web of Science following the PRISMA guidelines. In the current narrative review databases were searched to identify all the related reports discussing the impact of COVID-19 on the urogenital field. Keywords: urogenital system, COVID-19, secondary damage. Analysis of 657 articles was performed and only 7 publications were selected. We excluded articles of children, female patients, non-English language, non-full text articles focused on other topics.

CONCLUSIONS

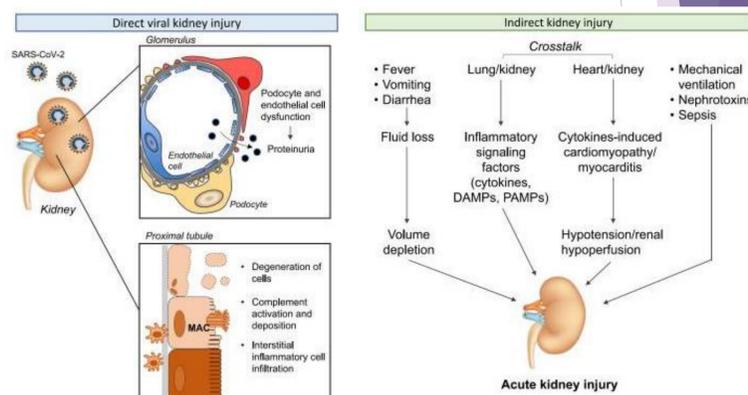
COVID-19 has a direct and indirect effect on urogenital system: can cause AKI via ACE2 infection or via secondary damage, disturb normal male gonad function by effecting spermatogenesis and sex-related hormone ratio. In these studies, a longer period of follow up is needed.

AIM

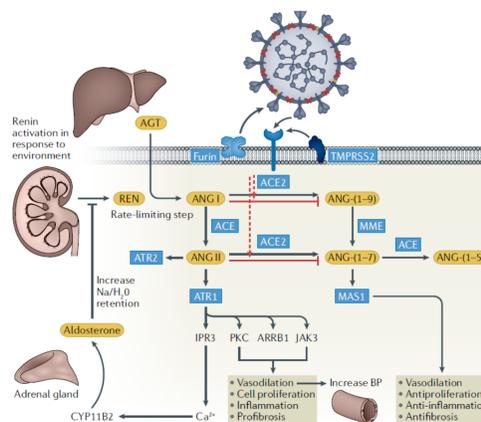
To review COVID-19 infection impact on male urogenital system.

RESULTS

One of the key points about COVID-19 impact on urogenital system is its effect on kidneys. Direct viral kidney injury occurs because virus-induced ACE2 infects glomerular endothelial cells, podocytes infection follows and the virus enters the tubular fluid, consequently binds to its receptors in proximal tubules. That can result in acute kidney injury (AKI). Also there are a few indirect kidney injury mechanisms.



Another key point is COVID-19 interferes with the protective function of ACE2. This could lead to infection, loss of protective effects, which can disrupt spermatogenesis and cause infertility.



Based on reference values the semen characteristics of recovered COVID-19 males were within the lower reference limits. Compared with age-matched healthy men recovered COVID-19 patients had a significantly lower sperm count and total motility. Patients with longer recovery time had a significantly lower total sperm count compared to those with shorter ones.

Last study showed that COVID-19 patients had higher serum LH compared to the age-matched healthy men. Moreover, the ratio of T:LH was significantly lower in the study group. Elevated LH and decreased T:LH ratio can be caused by testes dysfunction.