Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Covid-19, TMPRSS2, and whether android regulation affects pandemic virus gender incidence and age distribution of disease

The likely reason that Covid19 has male predominance is that it appears to be an androgen driven pathogen. SARS-COV2, coronavirus spike protein undergoes proteolytic activation by Transmembrane Serine Protease 2 (TMPRSS2), to enable SARS-COV-2 to utilize the ACE2 receptor for cellular entry [1].

TMPRSS2 is highly expressed primarily in prostate epithelium, high-grade prostate cancers and is androgen regulated [2].

Androgen regulation may explain the paucity of cases of Covid19 in preadolescents, since they don't have the androgens to prime the TMPRSS2 cell surface protease.

Covid19 has affected men, smokers and the elderly more than other groups.

Smoking appears to increase the ratio of androgens to estrogen, which may prime the TMPRSS2 cell surface protease [3].

Possibly, benign prostatic hypertrophy being more common in elderly men, may contribute to increased TMPRSS2 as well, leading to increased severity of viral infection in the older age group.

Inhibitors of TMPRSS2 include bromohexine [2] and Camostat [1].

Inhibiting androgens could also be another approach to managing the Covid19 virus.

TMPRSS2 is also a host cell factor necessary for viral spread of H1N1 and H3N2 influenza A viruses, indicating a similar phenomena may occur with other pandemic viruses, since male predominance has been observed in pandemic influenza A [4].

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.mehy.2020.109773.

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