

Do estrogen antagonists and anti-androgens prevent the COVID-19's pulmonary involvement?

Mehrdad Jalalian

Note: Dr. Mehrdad Jalalian is an editor of Electronic Physician, this paper has been reviewed by three experts

Type of article: Hypothesis and Idea

Abstract

Male and female hormones are upregulators of expression of Angiotensin-converting Enzyme 2 (ACE2) gene. This short article proposes a hypothesis about the potential effect of estrogen antagonists and anti-androgens in preventing pulmonary involvement in COVID-19 infection through their downregulatory effect on ACE2 expression.

Keywords: COVID-19, Prophylaxis, Coronavirus, ACE2, S-protein, Estrogen, Testosterone

Abbreviations / Acronyms:

ACE2: Angiotensin-converting Enzyme 2, **COVID-19:** Coronavirus Disease 2019

The Idea:

Children carry the virus very frequently; but the pulmonary involvement is rare in childhood (1, 2). Based on the facts that (i) estrogen and testosterone are the upregulators of ACE2 gene and ACE2 plays the main role in binding with the coronavirus's S-protein (3), and (ii) the sex hormones are absent in childhood, using estrogen antagonists (in female adult) and anti-androgens (in male adult) may prevent the lower respiratory tract involvement in patients in early stage of COVID-19 infection. Such medicine should exclusively be absorbed by epithelial cells in the lung to avoid the systemic side effects. Medical staff and people who are living with patients may also benefit from such medicine as a prophylactic agent. Since the sex hormones may be main actor in the almost 0 and 1 (binary) age distribution model of pulmonary involvement among children and adults, I highly recommend examining this hypothesis at the earliest time.

Conflict of Interest:

There is no conflict of interest to be declared.

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Corresponding author:

Dr. Mehrdad Jalalian. Editor-in-Chief, Electronic Physician Journal, Mashhad, Iran.

Tel: +98.9164337176, E-mail: mehrdad.medic@gmail.com

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