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## LETTER

# Clinical study of novel coronavirus pneumonia prevention by melatonin

Ziru Niu, Rong Li\*



**W**e thank Dr Tesarik for his correspondence (Tesarik, 2020), stimulated by our recent publication on the potential long-term effects of COVID-19 disease on reproductive health (Li et al., 2020).

Melatonin (N-acetyl-5-methoxytryptamine) was first reported in 1958 (Lerner et al., 1958). Although studies on melatonin had already emerged, its function remained underestimated. The main role of melatonin is to mediate dark signals, with possible implications to stabilize circadian rhythms (Cardinali and Pevet, 1998). Besides circadian regulation, melatonin may also be effective in the areas of immunomodulation, apoptotic, antioxidant, angiogenic, anticancer properties, anti-proliferative and anti-

ageing (Saha et al., 2019). Furthermore, melatonin has been demonstrated to play a role in antiviral therapy, for example in infections of encephalitis virus (Silvestri and Rossi, 2013) and respiratory syncytial virus (Huang et al., 2010).

Many recent studies also suggest its potential role in treating COVID-19 due to its immune enhancing, antioxidant and anti-inflammation capabilities (Reiter and Ma, 2020). Elderly people are a more susceptible population for COVID-19. Melatonin is an age-dependent chemical, which means melatonin levels are lower in older people (Iguichi et al., 1982). Studies also indicated that the level of melatonin in bats is high which may protect them from coronaviruses (Heideman et al., 1996). Coronavirus could trigger inflammasome and cause inflammation;

melatonin could potentially reduce these complications. Pulmonary fibrosis is the most significant complication of COVID-19. Melatonin may inhibit the regulators of proinflammatory and profibrotic cytokines at the molecular level (Shneider et al., 2020). It may also modify endoplasmic reticulum stress and stimulates unfolded protein response through viral infections (Chen et al., 2018).

In view of the ongoing repeated outbreaks of COVID-19, it is strongly suggested that the collection and analysis of available clinical data on the effectiveness of melatonin is begun immediately. Doctors and scientists should conduct researches to better understand the effectiveness of melatonin and to further illustrate its role in antiviral therapy.

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Reproductive Medical Center, Department of Obstetrics and Gynecology, Peking University Third Hospital, Beijing, China

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\*Corresponding author. E-mail address: roseli001@sina.com (R Li). <https://doi.org/10.1016/j.rbmo.2020.09.003> 1472-6483/© 2020 Reproductive Healthcare Ltd. Published by Elsevier Ltd. All rights reserved.