



Coronavirus disease 2019 and obstructive sleep apnea syndrome

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Dear Editor

The publications regarding the continuing of pandemic coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), are increasing. Increased age, hypertension, cardiovascular diseases, lung diseases, and diabetes mellitus seem to be the main risk factors for mortality in COVID-19 [1]. However, the possible association between obstructive sleep apnea syndrome (OSAS), repetitive airway collapse with apnea/hypopnea and hypoxia during sleep, and COVID-19 has not been reported yet.

Angiotensin converting enzyme 2 (ACE2) is the entry receptor of SARS-CoV-2 [2]. Of note, the increased expression of ACE and dysregulation of renin angiotensin system in untreated OSAS patients due to chronic intermittent hypoxia has been shown [3]. Furthermore, cardiovascular complications or comorbidities such as hypertension, heart failure, coronary artery disease, cerebrovascular diseases, diabetes mellitus, and obesity—those are also risk factors for mortality in COVID-19—are commonly seen in OSAS patients [1, 4]. Fibrotic changes can also be seen after COVID-19 [5] and fibrosis was previously shown to be a risk factor for OSAS.

To the best of our knowledge, this is one of the first reports highlighting the possible association between OSAS and COVID-19. Herewith, presenting this clinical perspective is two-fold. First, OSAS may be a risk factor for mortality or deteriorate the clinical scenario in COVID-19. Therefore, keeping in mind the modulating effects of sleep on the

immune system, proper treatment of OSAS patients may be protective/beneficial in COVID-19. Second, patients who suffered from COVID-19, particularly severe cases, may be under risk for OSAS due to pulmonary fibrosis. Clinicians should be cautious against the OSAS presence during the later periods in relevant patients.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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