Case Report: Newly Diagnosed OSA after COVID-19 infection

Background:

Obstructive sleep apnea (OSA) is thought to be related to coronavirus disease 2019 (COVID-19) infection but whether COVID-19 is a cause or a risk factor for developing OSA is still under discussion.

Case Presentation:

This 31-year-old female patient without systemic disease including obesity or metabolic syndrome was diagnosed as COVID-19 infection in 2022 without obvious sequelae initially. However, snoring, fatigue, insomnia, sleep fragmentation, and daytime somnolence were gradually found within 1 year after COVID-19 infection. Therefore, she went to our sleep center for further evaluation. Elevated blood pressure was found, and fiberscope showed bilateral boggy and hypertrophic inferior turbinate. Polysomnography was arranged and OSA was diagnosed. Autonomic dysfunction, poor quality of life, and sleep bruxism were also found during examination. Pulmonary rehabilitation and boosted COVID-19 vaccination were educated to the patient. Blood pressure measurement was also educated to this patient and further health examination especially metabolic profiles was suggested.

Discussion:

Sleep apnea is a risk factor of COVID-19 infection, but whether COVID-19 is a cause or a risk factor for developing OSA is unknown. Renin-angiotensin-aldosterone system (RAAS) and angiotensin-converting enzyme 2 are proved to be related to COVID-19 infection. Cardiovascular and metabolic disorders are also proved to be related to RAAS impairment. There is shared pathophysiology between COVID-19 infection and cardiovascular or metabolic disorders. OSA with increased daytime impairment and asymptomatic OSA were also considered to be a possible reason of fatigue especially after COVID-19 infection. Risk of neurocognitive impairment and abnormal functional pulmonary changes increased, and effects persist up to 1 year after infection. Pulmonary rehabilitation is recommended for COVID-19 patients no matter before or after hospital discharge, and it can improve physical and functional activity, but a multidisciplinary team is still needed for comprehensive care. Booster COVID-19 vaccination is suggested for OSA patient after COVID-19 infection.

Conclusion:

COVID-19 infection may increase the risk of OSA in hypothesis, but it definitely increases the risk of cardiovascular and metabolic disorders. A comprehensive follow-up with boosted COVID-19 vaccination is needed.

中文題目：個案報告：新冠感染後的新診斷阻塞型睡眠呼吸中止症

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Sleep apnea is proved to be a risk factor of severe COVID-19 infection [d]. In addition, the more comorbidities, the more risk of severe COVID-19 infection was reported. [b]

Increased daytime impairment and asymptomatic OSA were reported, and fatigue was also considered to be a possible reason of fatigue especially after COVID-19 infection [c].

Risk of glycemic changes, neurocognitive impairment, and abnormal functional pulmonary changes increased and the effects persist up to 1 year since acute phase [a]

Renin-angiotensin-aldosterone system (RAAS) and angiotensinconverting enzyme 2 are related to COVID-19 infection due to angiotensinconverting enzyme 2 as the entry receptor of COVID-19 in the cells [e]. RAAS is also a critical center for electrolyte balance, vessel resistance and blood volume regulation. Therefore, hypertension, heart failure, cardiovascular diseases, and renal diseases is proved to be related to RAAS impairment [f].

Pulmonary rehabilitation is recommended for COVID-19 patients no matter before or after hospital discharge. It is able to improve physical and functional activity but a multidisciplinary team is still needed for comprehensive care [g].

Booster COVID-19 vaccination is suggested for OSA patient after COVID-19 infection because this management is found to decrease the risk of COVID-19 related hospitalization [b].

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