

The association between biochemically confirmed thyroid gland disorder and morbidity and mortality in patients with COVID-19

Dear Editor,


Given the worldwide prevalence of thyroid disease, there is a pressing need to assess the risks and severity of COVID-19 infection among this group of patients. A study conducted by Brix et al.¹ found that there is no difference in the clinical outcome of COVID-19, including mortality rate, intensive care unit admission, and the use of mechanical ventilation, between patients with hypothyroidism and hyperthyroidism and euthyroid patients. Despite their interesting and unique study results, their definition of thyroid disorder, which was based on whether the patients receiving treatment for thyroid disease or not, might not be entirely reflective of the functional state of the thyroid gland. Patients on thyroid hormone replacement or antithyroid therapy would usually be in an euthyroid state. As noted by the authors, the lack of biochemical confirmation of the clinical thyroid state in both tested and control groups represents a major limiting factor in the study. These factors raise the question which hopes to be answered: "do hypothyroidism and hyperthyroidism based on the biochemical confirmation, not treatment status, increase risk of morbidity and mortality in COVID-19?" A retrospective study analyzing the clinical data of over 3000 patients did not find an increased risk of morbidity and mortality in COVID-19 patients with confirmed hypothyroidism and who received thyroid hormone treatment, which supports Brix et al.'s findings.² On the other hand, Zhang et al.³ tested the possible impact of thyroid dysfunction, including overt hypothyroidism and overt hyperthyroidism, on the clinical outcome in hospitalized patients with COVID-19. In their study, patients with thyroid disorder were identified based on abnormal thyroid function tests, not treatment status. They found that COVID-19 patients with biochemically confirmed hypothyroidism and hyperthyroidism had a higher risk of complications and death compared with patients with normal thyroid function tests. Although their finding might provide an answer to our question, the study sample size is small. Hence, there is a need for a similar study to be replicated in a larger sample size to confirm the external validity of its findings. Interestingly, a systematic review that included seven studies with a total of 1237 patients with COVID-19 found a positive correlation between biochemically confirmed thyroid dysfunction and disease severity in COVID-19.⁴

In sum, there is a still need for further studies to determine the risks and severity of COVID-19 infection among patients with a thyroid disorder. Lui et al.⁵ concluded that COVID-19 infection can

lead to exacerbation of pre-existing autoimmune thyroid disease. Therefore, early diagnosis and management of thyroid disorders during the pandemic time might help to reduce any potential risks and improve the clinical outcome of COVID-19 infection in patients with previously undiagnosed thyroid disease. One suggested approach is to offer checking TSH level as a screening tool for individuals who are at higher risk of developing thyroid disorder, such as old age, personal history of autoimmune diseases, and family history of thyroid illness,⁶ to increase the chance of early diagnosis and treatment of subclinical and overt thyroid disorder during this pandemic. Patients with confirmed thyroid disorder might be suitable candidates to be prioritized to receive COVID-19 vaccine to reduce the risk of morbidity and mortality of COVID-19 infection.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

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