



Following SARS-CoV-2 in the first trimester of pregnancy, what should we do in the 2nd, 3rd trimesters, and postpartum in terms of thyroid assessment?

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To the Editor:

Coronavirus disease 2019 (COVID-19) is an emerging infectious disease threat to human existence [1]. COVID-19 may attach to the endocrine glands, so in patients with COVID-19, the endocrine glands may be susceptible to disturbance [2]. There is some evidence in terms of the association between COVID-19 and thyroid dysfunction, including overt and subclinical thyrotoxicosis, subclinical hypothyroidism, and subacute thyroiditis (SAT) [3–5]. Indeed, COVID-19 may act as a trigger for autoimmune disease and exacerbated thyroid autoimmunity such as Graves' disease [6]. A cohort study in COVID-19 patients without preexisting thyroid disease revealed a small decrease in serum thyrotropin (TSH) and free thyroxine (FT4), but it was transient and returned to the baseline after recovery of COVID-19 [7]. In another among Chinese participants, total triiodothyronine (TT3) and TSH in patients with COVID-19 were significantly lower than the control group, but after recovery of COVID-19, the difference was disappeared [8].

Angiotensin-converting enzyme 2 (ACE2) acts as a functional receptor and host of COVID-19 [9]; it is highly expressed in the placenta in early to mid-pregnancy [10, 11]. Moreover, the specific physiological changes related to the anatomy and immune system of pregnant women increased their susceptibility to the COVID-19 [12–16].

There are a limited number of studies that investigated thyroid dysfunction in pregnant women after the COVID-19 pandemic [17, 18]. Cases of COVID-19-related hypothyroidism has been reported by two studies conducted in China in 3–4% of infected pregnant women [19, 20].

Recently, in a retrospective cohort study conducted in two groups of pregnant women including women who pregnant before COVID-19 outbreak, and those got pregnant during COVID-19 outbreak; they found that the recent group has significantly higher serum FT3, and lower FT4 levels compare to the other one [21]. It is assumed that COVID-19 per se may act as a trigger for thyroid abnormalities [4–6, 21]. In addition to the physiological changes of pregnancy, COVID-19 may also affect thyroid hormones through psychological pathways [22–24]. It is proposed that euthyroid pregnant women who infected by COVID-19 in the first trimester, may need to be re-assessed during 2nd, and 3rd trimesters and the postpartum periods. As a result in addition to the adverse effect of virus infection on pregnancy outcomes; this effect may be intensified by the possible impact of COVID-19 on the thyroid function of pregnant women [25, 26].

Given the more susceptibility of pregnant women to COVID-19 and the important role of thyroid hormones on pregnancy outcomes we recommended that:

To re-assess the thyroid status of euthyroid pregnant women infected by COVID-19 in their 1st trimester of pregnancy, especially those who are considered as high risk for thyroid dysfunction or had a previous history of thyroid autoimmune disease.

To re-assess the symptoms and signs of thyroid dysfunction in euthyroid pregnant women infected by COVID-19 in their 1st trimester of pregnancy.

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To provide a telehealth consultation plan for women who severely affected by COVID-19 during the first trimester of pregnancy for early diagnosis of thyroid dysfunction. To investigate the short and long-term obstetric and fetal outcomes in euthyroid women infected by COVID-19 in the first trimester of pregnancy and have thyroid dysfunction after infection.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

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