Management of Graves’ hyperthyroidism and orbitopathy in time of COVID-19 pandemic

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Introduction

The Coronavirus disease 2019 (COVID-19) pandemic has prompted reflections and statements on the management of endocrine and metabolic disorders, including diabetes mellitus, obesity, adrenal insufficiency [1, 2], as well as on the way COVID-19 outbreak might affect our daily clinical practice after the pandemic will be over [3].

Graves’ disease is by far the most common cause of hyperthyroidism, with a > 1% prevalence in the general population [4]. Graves’ orbitopathy (GO) is its most frequent extrathyroidal expression, affecting about 25–30% of Graves’ patients and being severe enough to require active immunosuppressive treatments in 5% of them [5]. Antithyroid drugs (ATDs), mainly methimazole (MMI), less frequently propylthiouracil (PTU), represent the first-line treatment for Graves’ hyperthyroidism worldwide [6], but frequent relapses after ATD withdrawal make it often unavoidable thyroid ablation by either radioactive iodine (RAI) or thyroidectomy [6] that cause permanent hypothyroidism.

While there is no current evidence that Graves’ disease per se or ATD treatment increase the risk of COVID-19 infection, a Graves’ patient might be more prone to develop symptomatic forms of COVID-19 infection. Uncontrolled hyperthyroidism is associated in the elderly to cardiovascular diseases, that is the main cause of Graves’ patients excess mortality [7, 8], but also a cause of COVID-19-related mortality. On the other hand, infections, particularly respiratory infections, can precipitate thyroid storm, a life-threatening exacerbation of untreated/poorly treated or decompensated hyperthyroidism, characterized by multiorgan failure [9]. Thus, COVID-19 infection is a risk factor for a poor control of hyperthyroidism, which, in turn, may contribute to the infection-related mortality risk. The logical consequence is that patients with Graves’ hyperthyroidism, particularly the elderly, should be given particular attention by general practitioners and thyroid specialists.

Treatment of non-COVID-19 Graves’ patients

ATDs remain the treatment of choice under these conditions. Although patients are normally treated for 18–24 months, there is evidence that long-term ATD treatment is safe, particularly if low doses of the drug are required to control thyroid hormone excess [10]. In addition, during the pandemic outburst, non-urgent surgery, as well as RAI treatment, have been stopped. Therefore, unless there is an emergency (hyperthyroidism refractory to ATDs, very large goiters with severe compressive symptoms), definitive treatments should be postponed.

After the initial control of thyroid hyperfunction with appropriate dosage of the drug, ATDs can be given by the titration regimen (using the lowest dose of the drug that maintains euthyroidism) or the block-and-replace regimen (using constantly high doses of MMI in association with levothyroxine to avoid hypothyroidism) [6]. The latter method may have the advantage, during the pandemic, to avoid repeated thyroid function testing and visits. The drawback of this strategy, mainly in patients managed by telemedicine,
oral glucocorticoids are also widely used, although less effective and less well tolerated [15]. Glucocorticoids cause immunosuppression, which is a risk factor for COVID-19 infection unfavorable outcome. On the other hand, severe, sight-threatening forms of GO do require aggressive glucocorticoid treatment to avoid irreversible loss of vision. There are no available guidelines for treating these patients in time of COVID-19. If GO is not very severe, systemic treatment should be postponed, and local treatments and preventive measures can be used [15]. In patients who are already under intravenous glucocorticoid treatment on a weekly basis, it might be conceivable to continue this treatment, provided that the hospital offers a clear separation and different paths between COVID-19 areas and COVID-free areas, and adequate shielding is given. Alternatively, and preferably to avoid unnecessary visits to the hospital, these patients might be shifted to oral glucocorticoid therapy, at home. It is essential to strongly recommend following general measures of social confinement and distancing, hands and surfaces hygiene, shielding if and when going outside. Although intravenous glucocorticoid therapy for GO does not seem to be associated with secondary adrenal insufficiency [16], patients who recently finished the intravenous glucocorticoid treatment, and more obviously, those who completed a long-term course of oral glucocorticoids for GO, should be considered at risk of potentially having an acute adrenal crisis if they get infected by Coronavirus. Accordingly, they should receive instructions on how to recognize symptoms of incipient adrenal insufficiency, inform immediately their family doctor, and adjust the daily dose of hydrocortisone as indicated for sick days.

Orbital decompression should be deferred, unless there is an immediate threat for the patient’s sight. Likewise, rehabilitative surgery (squint surgery, eyelid surgery) should also be postponed.

Compliance with ethical standards

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

Ethical approval This article is an Opinion paper, with no original experimental or clinical data, and thus no ethical approval is needed.

Informed consent Informed consent is not needed, because this article does not contain any original research on either animals or human subjects.

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