



# Severe hypocalcemia in a thyroidectomized woman with Covid-19 infection

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Dear Editor,

A 72-year-old woman was admitted to the hospital with acute perioral paresthesia and dysarthria that she never experienced before. She reported mild fever and headache for the previous 3 days. She had low serum total (4.75 mg/dl) and ionized (2.09 mg/dl) calcium, hyperphosphatemia (5.2 mg/dl), slightly increased serum creatinine (1.54 mg/dl), and respiratory alkalosis (pH 7.5, PCO<sub>2</sub> 29 mmHg, PO<sub>2</sub> 74 mmHg). Total proteins and albumin were normal (69.2 g/L and 40 g/L, respectively). She had lymphocytopenia, increased lactate dehydrogenase (515 IU/L), and C-reactive protein levels (28.2 mg/L). She reported total thyroidectomy 19 years ago on L-thyroxine 100 µg/day, arterial hypertension on angiotensin-converting enzyme inhibitors, and hydrochlorothiazide and mild renal insufficiency from several years. The chest X-ray did not show signs of pneumonia. Nasopharyngeal swab for Covid-19 was performed due to contact with a suspect infected subject.

Intravenous infusion of calcium gluconate was initiated with immediate beneficial effects on hypocalcemic symptoms and progressive amelioration of calcium so she could be switched to oral treatment. The patient resulted positive to Covid-19 test. PTH was 10 pg/ml (n.r. 15–65) and 25-OH vitamin D 8 ng/ml, with normal FT<sub>4</sub> and TSH. The patient underwent resolution of fever and headache and was discharged after 9 days with normal calcemia (9.1 mg/dl) on oral calcitriol 0.25 µg/day and calcium carbonate 1000 mg/day [1].

This is the first case of Covid-19 infection as the possible precipitating cause of subclinical post-surgical hypoparathyroidism presenting with severe hypocalcemia. Hypocalcemia was already shown to be common in patients with

SARS (60% of patients at hospital admission), although generally mild [2], and in patients with Ebola virus disease (62%) [3]. So far, hypocalcemia was not reported among the main laboratory features of Covid-19 infection [4]. In this case, besides the previous thyroidectomy, possible contributing factors could have been renal insufficiency, hydrochlorothiazide treatment (although both long-standing), and respiratory alkalosis which is quite commonly reported also in seriously ill Covid-19 patients [4].

This case suggests that hypocalcemia may occur also in Covid-19 infection. Therefore, all patients with postsurgical hypoparathyroidism should continue their treatment to avoid severe acute hypocalcemia which can be life-threatening [1] and since vitamin D deficiency, worsened by home confinement, may predispose to systemic infections [5]. Moreover, mild hypoparathyroid patients not requiring chronic treatment should undergo careful surveillance in areas characterized by the outbreak of Covid infection. Finally, since hypocalcemia may have a negative impact on cardiac outcomes [4], we suggest calcium evaluation and monitoring in all hospitalized patients with Covid-19 infection.

## Compliance with ethical standards

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

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