

Early Follow-up of Atypical Thyroiditis Induced by SARS-CoV-2

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Background: In Spring 2020 the severe acute respiratory syndrome coronavirus 2 pandemic disease (Covid-19) badly affected Northern Italy. We have described for the first time the occurrence of thyrotoxicosis due to atypical subacute thyroiditis in 15% of patients hospitalised for Covid-19 pneumonia, compared with only 1% among patients hospitalised in the same wards during Spring 2019, thus before the Covid-19 pandemic. The whole group of Covid-19 patients also had median serum TSH concentrations significantly lower compared with the control group. The atypical thyroiditis induced by Covid-19 is not associated with neck pain, affects more men than women and especially those severely ill, thus coexists with non-thyroidal illness syndrome. Subacute thyroiditis is classically followed by subsequent occurrence of permanent thyroid dysfunction and autoimmunity, thus we have started a systematic follow-up program of these patients.

Methods: Longitudinal follow-up study of survived Covid-19 patients without previous known history of thyroid disorders and/or medications, assessing serum thyroid function and autoantibodies, C reactive protein (CRP), full blood count (FBC) and thyroid ultrasound (US) every 3 months. Patients showing baseline (at hospitalisation for Covid-19) thyroid dysfunction and/or focal hypoechoic areas suggestive for subacute thyroiditis at US performed 3 months post-infection, also underwent thyroid ^{99m}Tc or ¹²³I uptake.

Results: To date, 53 patients have been included in the follow-up study. At 3 months post-infection, all of them presented with increased median (IQR) serum TSH concentrations compared with baseline: 1.3 (0.9-2.0) mIU/L versus 0.9 (0.5-1.8) mIU/L ($p=0.0001$). Similarly, serum concentrations of free-thyroxine, free-triiodothyronine, CRP and FBC had normalised compared with baseline. All patients had negative autoantibodies to TSH receptor; autoantibodies to thyroglobulin and to thyroid peroxidase were positive in 6/53 (11%) and 5/53 (9%) of patients, respectively. The thyroid US showed the presence of focal hypoechoic areas of thyroiditis in 16/51 (32%) patients, with thyroid uptake normal in 6/16 (37%), focally reduced in 8/16 (50%) and diffusely reduced in 2/16 (12%).

Conclusions: At 3 months after Covid-19 disease all patients had a normalised thyroid function, however imaging findings suggestive for subacute thyroiditis were still present in about one third of cases. The thyroid dysfunction induced by Covid-19 seems not mediated by autoimmunity. It is important to continue to follow these patients since they might develop thyroid dysfunction during the following months.

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