

The Prognostic Impact of Thyroid Hormonal Disorders and Thyroid Nodule According to the Clinical Severity of Coronavirus Disease 2019 (COVID-19): Results of Single Center Pandemic Hospital

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Abstract

Background: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can cause thyroid hormonal disorders. In addition, tracheal compression by thyroid nodules can aggravate hypoxia in critically-ill patients. No studies have investigated the effect of thyroid nodules on the prognosis of patients with COVID-19. In this study, we investigated the effect of thyroid hormonal disorders and thyroid nodules on the prognosis of patients with COVID-19. Material and Methods: This prospective study was conducted at the Şırnak State Hospital (Pandemic hospital in Turkey) between 15 March and 15 August 2020. We evaluated thyroid hormonal disorder and thyroid nodules in 125 patients who were admitted to the non-intensive care unit (non-ICU) due to mild COVID-19 pneumonia (group 1) and 125 critically-ill patients who were admitted to the ICU (group 2). Results: Thyroid stimulating hormone levels (TSH) were not significantly different between groups 1 and 2 ; however, group 2 patients had significantly lower levels of free thyroxine (FT4) and free triiodothyronine (FT3) as compared to group 1 ($p = 0.005$, $p < 0.0001$, respectively). FT3 level showed a negative correlation with length of hospital stay and C-reactive protein level (ρ : -0.216, p : 0.001; ρ : -0.383, $p < 0.0001$). Overt thyroid disorder was observed in 13 patients [2 patients in group 1 (both with overt thyrotoxicosis) and 11 patients in group 2 (3 overt hypothyroidism, 8 overt thyrotoxicosis) ($p = 0.01$)]. Thyroid nodules sized ≥ 1 cm were found in 9 patients (7 %) in group 1 and 32 patients (26%) in group 2 ($p < 0.0001$). Conclusion: Overt thyroid hormonal disorders were more common in critically-ill COVID-19 patients. FT3 level at hospital admission is a potential prognostic marker of COVID-19 patients. Thyroid nodules may be associated with severe COVID-19 disease.

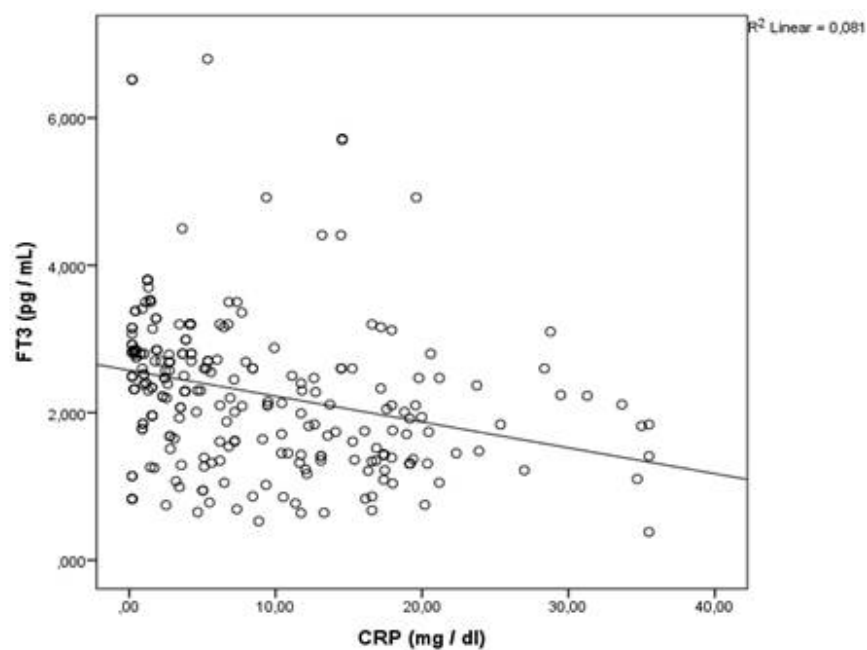
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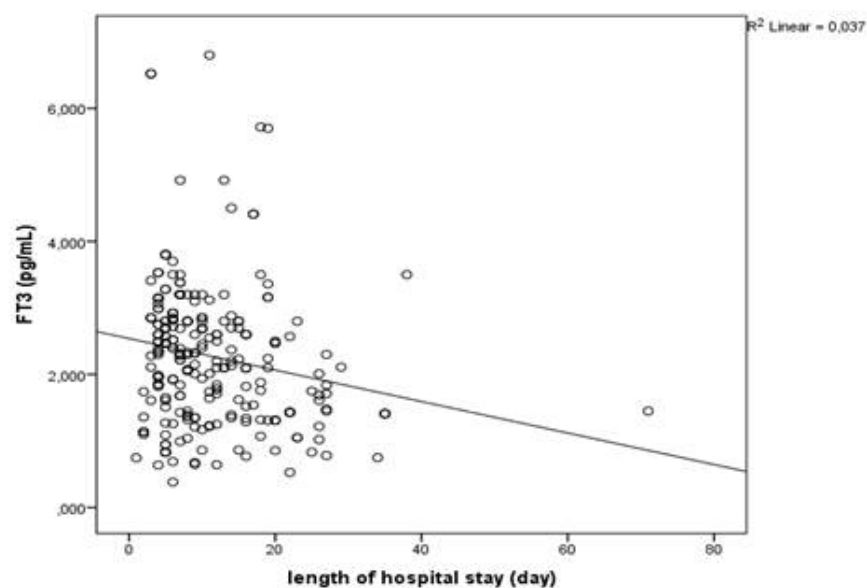
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