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The relationship between urinary iodine levels and the systemic inflammatory index in patients with papillary thyroid carcinoma

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Abstract

Iodine is a critical component of thyroid hormones, and its deficiency or excess can lead to various thyroid dysfunctions, including thyroid cancer. Papillary thyroid carcinoma (PTC) is the most common type of thyroid cancer. Despite this, the role of iodine, an essential micronutrient for thyroid function, in the pathophysiology and progression of PTC remains an area of active research. The systemic inflammatory index (SII), which includes parameters such as neutrophil, lymphocyte, and platelet counts, serves as a marker of systemic inflammation and has been associated with prognosis in several cancers. This article examines the relationship between urinary iodine levels (UIL) and the systemic inflammatory index in patients diagnosed with PTC, exploring potential implications for the disease. In this study, 121 patients with variously scheduled thyroidectomies were included. Before the procedure, the iodine content of each patient's urine was measured. Based on the findings of the post-operative pathology, the patients were divided into two groups. Thyroid histopathology resulted in the inclusion of benign (n=40) and PTC (n=81) cases in the study. In the post-operative period, the median urinary iodine excretion average was statistically higher in the group with malignant thyroid pathology compared to the benign pathology group. However, no statistical difference was found between the groups when classified according to iodine excretion. The performance of the Systemic Inflammation Index in predicting malignant pathology results was evaluated using a ROC curve analysis. The ROC curve demonstrated 58% sensitivity and 72.5% specificity at a cutoff point of >485. In conclusion, the findings suggest that the SII is an effective biomarker for assessing histopathology in thyroid surgeries. However, further studies are needed to validate these findings and explore the potential of SII in clinical settings.

Keywords: papillary thyroid carcinoma, median urinary iodine, systemic inflammatory index

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