

## The Differences of Vascular Endothelial Growth Factor Levels in Serum to Determine Follicular Adenoma and Follicular Carcinoma of Thyroid

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**Abstract :** Thyroid cancer is a healthcare problem with high morbidity and mortality. Follicular adenoma and follicular carcinoma are thyroid tumors from the thyroid follicular cells differentiation with a microfollicular pattern that consists of follicular cuboidal cells. vascular endothelial growth factor (VEGF) is a potent and powerful mitogen for endothelial cells and increases vascular permeability. Therefore, due to an increase in thyroid-stimulating hormone (TSH), VEGF production is activated in the thyroid that leads to the end of mitogenic TSH stimulation and initiation of angiogenesis. The differences in VEGF levels in the follicular carcinoma of thyroid tissue with follicular adenoma thyroid can be used as a basis in differentiating the two types of neoplasms. This study aims to analyze VEGF in the serum so that it can be used to differentiate the types of thyroid carcinoma before surgery. This study uses a cross-sectional research design. Samples were carried out by taking serum samples, and the VEGF levels were calculated. Data were analyzed using the Mann-Whitney test. The results found a significant difference between VEGF levels in the follicular carcinoma thyroid group and VEGF levels in the follicular adenoma thyroid group with a value of  $p = 0.007$  ( $p < 0.05$ ). The results obtained are  $560,427 \pm 160,506$  ng/mL in the type of follicular carcinoma thyroid and  $320.943 \pm 134.573$  ng/mL in the type of follicular adenoma thyroid. VEGF levels between follicular adenoma and follicular carcinoma are different. VEGF levels are higher in follicular carcinoma thyroid than follicular adenoma thyroid.

**Keywords :** follicular adenoma thyroid, follicular carcinoma thyroid, thyroid, VEGF

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