

Abstract

The Role of VEGF in Colorectal Cancer

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Abstract: Introduction: Vascular endothelial growth factor (VEGF) plays a crucial role in the pathogenesis of colorectal cancer (CRC), primarily by promoting angiogenesis, which supports tumor growth, progression, and metastasis. Objective of the study: To investigate the role of VEGF expression in colorectal cancer using immunohistochemistry and explore its association with various clinical and pathological features. **Material and methods:** Were selected 44 cases of colon carcinomas surgically resected between 2020-2022 at “Pius Brinzeu” County Hospital from Timisoara. From each case, a paraffin block containing well-represented colon adenocarcinoma, avoiding necrotic areas, was chosen. Sections of 3-4 micrometers were immunohistochemically stained (IHC) using the anti-VEGF monoclonal antibody. The optimal antibody dilution (1/200) was tested on liver and lung tissue. IHC staining was performed using the Bond Max automated stainer, and reactions were visualized with DAB and counterstained with hematoxylin. Tumor cell cytoplasmic staining was considered positive, regardless of intensity. VEGF expression was scored based on intensity (absent, low, high) and extent (<25%, 25-50%, >50% of tumor cells stained). The intensity and percentage of stained tumor cells were compared with various clinical and pathological features. **Results:** High VEGF intensity was frequently observed in the left colon and low-grade tumors, with older patients showing a higher percentage of VEGF-positive cells (>50%). High VEGF intensity was associated with advanced pT stages (pT3 and pT4), and cases with lympho-vascular invasion had a higher number of VEGF-positive cells. The average number of positive lymph nodes was similar between low and high VEGF intensity groups. **Conclusions:** Overall, VEGF expression may be influenced by tumor location, grade of differentiation, and lympho-vascular invasion, suggesting a potential role in colorectal cancer progression. Further studies with a larger number of patients are necessary.

Keywords: VEGF, immunohistochemistry, colorectal cancer, angiogenesis.

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