

**CORRELATION BETWEEN VASCULAR ENDOTHELIAL GROWTH FACTOR  
- A EXPRESSION AND MICROVESSEL DENSITY IN COLORECTAL  
CANCER PATIENTS OF DR SARDJITO GENERAL HOSPITAL  
YOGYAKARTA**

**Abstract**

**Background:** Colorectal cancer is the third most common cancer worldwide. The development and metastatic process highly depends on angiogenesis mechanism. From all proangiogenic cytokines, Vascular Endothelial Growth Factor-A (VEGF-A) is the most potent one. Other than that, microvessel density is also a potential indicator for angiogenesis. It is important to explore about proportional differences of VEGF-A expression and MVD in colorectal cancer patients and correlation between both markers to enrich the understanding about angiogenesis process, thus hopefully the result can be implemented to improve the managements.

**Aim:** The aim of the research is to study the proportional differences of VEGF-A and MVD across various clinicopathological profiles and the correlation between both markers in colorectal cancer patients of Dr Sardjito General Hospital Yogyakarta.

**Method:** This study is an observational study with a cross sectional design and a part of the study conducted in Division of Hematology and Medical Oncology, Department of Internal Medicine, Dr Sardjito General Hospital. Paraffin-embedded tissue biopsy of colorectal cancer patients that were diagnosed between January 2007-July 2012 were included along with clinicopathological data of all patients. VEGF-A and MVD expressions were assessed using immunohistochemistry technique using anti-VEGF A and anti-CD31. The proportional differences and correlation between VEGF-A and MVD expressions were statistically analyzed.

**Results:** A significant higher frequency of strong VEGF-A expression in male gender ( $P = 0.003$ ) and high MVD quantification in synchronous metastatic time sequence ( $P = 0.04$ ) was found. There is no significant correlation between VEGF-A expression and MVD ( $P = 0.3$ ).

**Conclusion:** In the colorectal cancer patients, there is significant higher frequency of strong VEGF-A in male



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and high MVD in synchronous metastatic time sequence. There was no significant correlation between MVD and VEGF-A expression.

**Keywords:** Vascular Endothelial Growth Factor-A, Micro Vessel Density, Colorectal Cancer, Angiogenesis