

High Arg-1 expression is an indicator of poor prognosis in colorectal cancer patients

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The enzyme arginase1 (Arg-1) metabolizes L-arginine to L-ornithine and urea, and is an important component of the urea cycle. This enzyme has recently been documented to be a partner in various malignancies. However, the association between Arg-1 expression and clinicopathological characteristics of colorectal cancer (CRC) has not been elucidated. Our aim in this work is to analyze the expression and prognostic value of Arg-1 in CRC patients. Arg-1 expression in CRC patient was examined by Western blot analysis (n = 17) and immunohistochemistry (n = 146). The correlations between Arg-1 and clinical characteristics were analyzed. The expression levels of Arg-1 were significantly higher in CRC tissues than in matched non-cancerous tissues, and elevated Arg-1 expression was significantly associated with III-IVstage tumors ($p=0.005$), lymph node metastasis($p=0.005$), and plasma albumin concentration $\leq 35\text{g/l}$ ($p=0.021$). Kaplan-Meier analysis indicated that Arg-1 overexpression was correlated with adverse prognosis for overall survival(OS)($P=0.013$). Multivariate analysis revealed that Arg-1 overexpression was an independent prognostic factor influencing OS ($p=0.043$) in CRC patients. The data indicated that, Arg-1 overexpression in CRC could be a marker to discriminating subgroups of CRC patients with poor prognosis.