JBUON 2016; 21(4): 941-949
ISSN: 1107-0625, online ISSN: 2241-6293 • www.jbuon.com
E-mail: editorial_office@jbuon.com

ORIGINAL ARTICLE

Circulating and tissue galectin-1 and galectin-3 in colorectal carcinoma: association with clinicopathological parameters, serum CEA, IL-17 and IL23

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Summary

Purpose: *Galectins are modulators of many processes critical for tumor progression and metastasis but their clinical significance is still unclear. The objective of this study was to analyze the clinical significance of Galectin-1 and Galectin-3 in the tissue and sera of patients with colorectal carcinoma (CRC). Examined were also their association with serum CEA, IL-17 and IL-23 in CRC patients.*

Methods: *One hundred and twenty patients with CRC were included in this study. The expression of Galectin-1 and Galectin-3 in biopsy samples of CRC was determined using immunohistochemistry (N=120). The concentrations of Galectin-1, Galectin-3, IL-17 and IL-23 in the sera of CRC patients (N=38) were determined by Enzyme Linked Immunosorbent Assay (ELISA).*

Results: *Serum Galectin-1 concentrations positively correlated with parameters of malignancy including perineural invasion (p=0.016), lymph node involvement and distant metastases (p=0.029). Higher expression of peritumoral Galectin-1 was associated with both presence of perineural invasion and poor differentiation of CRC. Serum CEA levels positively correlated with circulating Galectin-1, but inversely correlated with peritumoral Galectin-1 expression. There was no correlation between Galectin-3 and clinicopathological parameters of CRC, but it was found that Galectin-3 expression in the tumor tissue positively correlated with serum IL-17 and IL-23. Circulating Galectin-3 levels significantly correlated with IL-17 (p=0.042), but not with IL-23 in the sera of CRC patients.*

Conclusions: *This study suggests that Galectin-1 and Galectin-3 exhibit protumorigenic activity in CRC by affecting different aspects of tumor progression. Galectin-1 facilitates tumor invasion and metastasis while Galectin-3 preferentially modulates tumor-associated inflammatory processes.*

Key words*: CEA, colorectal carcinoma, Galectin-1, Galectin-3, IL-17*

Introduction

Metastatic cascade is the final process in the progression of malignant tumors and includes the detachment of malignant cells from the primary tumor and their attachment to the endothelium and components of extracellular matrix at distal sites. The regulation of adhesion interactions is one of the critical steps in the establishment of metastases. Adhesion molecules are important players in the metastatic cascade involved in the regulation of tumor cell-extracellular matrix, tumor cell-cell and tumor-endothelial adhesion interactions [1].

Galectin-1 and Galectin-3 are members of a protein family that have affinity for β-galactose residues of glycoconjugates. These proteins are involved in many steps of tumor progression such as tumor growth, migration and invasion [2,3]. The direct interaction between tissue-plasmino-

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Received: 27/01/2016; Accepted: 09/02/2016