REPORT

INTERNATIONAL RESEARCH COLLABORATION

AND SCIENTIFIC PUBLICATION

IDENTIFY AND ANALYZE MOLECULAR MARKERS IN THE PROGRESSION AND METASTASIS OF COLORECTAL CANCER;

Evaluation of Protein Regenerating Liver-3 (PRL-3) as an emerging marker of carcinogenesis and its interact with other markers (Integrin β1, E Cadherin, MMP2, MMP9, VEGF A, VEGF C and EGFR)

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2014
Abstract

Background. Colorectal cancer is the third most common malignant neoplasm worldwide and the second leading cause of death due to cancer in the United States. In Indonesia, colorectal cancer is an emerging public health problem and currently ranks among the three highest cancers. In Makassar, South Sulawesi Indonesia, the incidence of colorectal cancer is increasing and recorded as the most common malignant cancer according the pathology based data during 2010-2011. Despite recent advances in diagnostic and therapeutic measures develop, the prognosis of colorectal cancer patients with distant metastasis still remains poor. Mortality rate of colorectal cancer quite high and related to metastasis. Study on molecular carcinogenesis in colorectal cancer among Indonesian population is still few, therefore, it is necessary to clarify the molecular mechanisms involved in development and metastasis and to identify the specific biomarkers of colorectal cancer metastasis. Recently, PRL-3 (phosphatase of regenerating liver-3/PTP4A3) was reported participates in invasion, migration, metastasis and angiogenesis. But the cascade and which molecular interact with this protein still need to identify.

Material and methods. Tissue samples approximately 100 cases were collected from the patients with colorectal cancer in Hasanuddin University Hospital and Wahidin Sudirohusodo Hospital. The clinicohistopathological data were recorded and the expression of protein PRL-3, E Cadherin, MMP2 and MMP9 were detected by immunohistochemistry and analyzed molecular interact between them.

Results and Discussion. PRL-3 protein was detected in cytoplasmic and cytoplasmic membrane of cancer cell. The expression was various among tumor cell. Cancer cells showing high expression of PRL-3 were detected heterogeneously in primary tumors, but most of the metastatic tumor cells demonstrated high expression of PRL-3 homogeneously. Moreover, in the primary tumors, high expression of PRL-3 seems correlated with venous invasion. PRL-3 was interact with MMP-2 and MMP-9 in the progression of Colorectal Cancer but the mechanism still need to clarify.

Keywords: Colorectal Cancer, PRL-3, E Cadherin, MMP2, MMP9, marker carcinogenesis, metastasis