

Expression of Cox-2, Cyclin D1 and P21 in Colorectal Cancer Patients and their Clinicopathological and Prognostic Significances

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Background: Cyclooxygenase-2 (COX-2), play an important role in inflammation, carcinogenesis and cell cycle alterations. It is incriminated in cancer progression by causing dysregulation of normal cell cycle control. Cyclin D1 plays a vital role in cancer cell cycle progression. The activity of cyclin D1 can be blocked by CDK inhibitors, including p21 (cyclin-dependent kinase inhibitor-1A, CDKN1A, CIP1) that plays a role in regulating cell cycle.

The purpose of this study: Was as to evaluate expression of COX-2, Cyclin D1 and P21 in colorectal cancer patients, analyze the relationship between their expression, clinicopathological criteria and the prognosis of patients.

Methods: Expressions of Cox-2, Cyclin D1 and P21 were evaluated in 60 paraffin blocks colorectal cancer patients that were followed up for 3 years. The relationship between their level of expressions and prognosis of patients was analyzed.

Results: Cox-2 & Cyclin D high expression was positively correlated with higher grade, advanced stage, presence of lymph node & distant metastasis and Duke stage (P=0.000).

P21 high expression was negatively correlated with presence of lymph node metastases, higher grade (p=0.002), advanced stage, presence of distant metastasis and advanced Duke stage (P=0.001). We found a direct relationship between Cox-2 and Cyclin D 1, an inverse relationship between Cox-2 and P21, and an inverse relationship between Cyclin D 1 and P21 (P<0.001).

Cox-2 & Cyclin D1 over expression and P21 low expression were positively associated with higher incidence of tumor recurrence (P=0.04, 0.000 respectively), higher incidence of cancer specific death (p=0.002, 0.004 & 0.000 respectively) but no significant correlation with response to therapy with all markers.

Conclusion: High levels of expression of Cox-2 & Cyclin D1 are markers of poor prognosis, while high level of expression of P21 is a marker of good prognosis in colon cancer patients these results suggest that loss of control of cell cycle check points is a common occurrence in CC, and regulation in cell growth control and tumor suppression.

Keywords: Cox-2, Cyclin D1, P21, colon cancer patients, immunohistochemistry, prognosis

Biography:

Dr. Ola A Harb, MD; completed her Pregraduate Medical Education (December 2005) in M.B.B.Ch., with Total grade-Excellent from Zagazig University, Egypt. She obtained her Postgraduate/M.Sc (May, 2010) & M. D. (January 2015) in pathology from Zagazig University, Egypt. Dr. Ola is presently working as a Lecturer, at Department of pathology, Faculty of Medicine, Zagazig University, Egypt.