

Clinical significance of MicroRNA21 expression in colon cancer

Ghazal AA, El Gezery DA, Sharaki OA, Helal SF, Abou-Zeid AA and Tayae E

Department of Surgery, Faculty of Medicine, Alexandria University, Egypt

Background: Colorectal cancer (CRC) is a major health problem with high mortality rates. New clinical biomarkers and therapeutic targets are needed for early diagnosis and adequate tumor staging. MicroRNAs are a family of small noncoding RNAs that are involved in regulation of gene expression. They are aberrantly expressed in many types of carcinomas. MicroRNA-21 (miR-21) was found to be up-regulated in several cancers and is therefore very promising as a clinical biomarker and therapeutic target.

Aim: The aim of the study was to assess the microRNA 21 expression in colon cancer tissues and adjacent nontumor tissues to evaluate its potential role in tumor diagnosis and its relation to clinicopathological features of colon cancer.

Methods: Total RNA was extracted with small RNA enrichment from the tissues samples of colon cancer as well as their adjacent non-tumor tissues taken from 60 patients. After reverse transcription, the expression of microRNA-21 was measured using quantitative real-time PCR.

Results: Expression levels of microRNA-21 in colon cancer was significantly higher than that their adjacent non-tumor tissues ($p < 0.001$). Furthermore, high expression of microRNA-21 was associated with lymphovascular invasion, advanced tumor invasion, presence of lymph node, distant metastasis, advanced tumor Stage and high tumor grade of differentiation. On the other hand, microRNA 21 expression was not significantly associated with age, sex, tumor size or tumor location.

Conclusion: MicroRNA 21 can differentiate tumor from adjacent non-tumor tissue with high diagnostic accuracy. It can also predict the presence of advanced tumor invasion, lymph node and distant metastasis in patients with colon cancer, which could help in tumor staging, and customized clinical management of colon cancer.

Biography:

Dr. Abdelhamid Ghazal is a Professor of General Surgery at the faculty of medicine-Alexandria University in Alexandria-Egypt. He obtained his masters in general surgery in 1998 and his MD in general surgery from the University of Alexandria in 2004. Dr. Abdelhamid Ghazal is experienced in laparoscopic surgeries, Diagnostic and therapeutic endoscopy. His academic professional experience dates since 1998 in teaching and supervision of medical students and general surgery residents in Alexandria Main University Hospital. He supervised surgery master and MD students since 2004. Dr. Abdelhamid Ghazal has many publications in international, peer reviewed journals concerning hepatic resection, pancreatic tumors, laparoscopic and endoscopic biliary surgery, elective and emergency colonic surgeries.