Evaulation of altered expression survivin related miRNAs in patients with colorectal cancer

Abstract

Background: Colorectal cancer (CRC) is one of the most common gastrointestinal malignancies and the main contributor to mortality in the world. miRNAs regulating survivin gene expression and disruption of its expression are involved in the initiation and progression of cancer. There has been no study on the changes in the expression of some miRNAs such as miR548, miR542 in tumor and adjacent tumor tissue samples in colorectal cancer patients undergoing surgery, especially in the population of Ardabil province.

Aim: This study was conducted with the aim of investigating the expression changes of miRNAs related to Survivin gene in patients with colorectal cancer.

Materials and methods: In this study, 35 tumor and adjacent tissue samples were collected from patients with colorectal cancer. The expression of microRNAs was studied using Real-time PCR technique. The statistical analysis of data was done using t-test and SPSS-22 software, and significance was considered at $P<0.05$ level.

Results: The average age of the participants in this study was 65.91 ± 12.03. Out of 35 cases, 26 (75%) were male and 9 (25%) were female. In terms of disease stage classification, in this study, 22.9% of colorectal cancer cases were stage 1, 51.4% were stage 2, 22.9% were stage 3, and 2.9% were stage 4.

The expression level of miRNA-548 in the tumor tissue sample of patients with colorectal cancer compared to the tissue adjacent to the tumor of patients with colorectal cancer was up-regulated ($P<0.05$) and the expression level of miRNA-542 was down-regulated ($P<0.05$).

Conclusion:

According to the results of the present study, changes in the expression of microRNAs related to Survivin gene can play a role in the pathogenesis of colorectal cancer, and targeting these microRNAs can be important in the prevention, diagnosis and screening of this disease.