

**Impact of microRNA -375 and its target gene
polymorphism SMAD-7 on susceptibility of
colorectal cancer**

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of M.Sc in medical biochemistry

By

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Abstract

Background and aim: Colorectal cancer(CRC) is a major cause of morbidity and mortality throughout the world. It accounts for over 9% of all cancer incidence. It is the third most common cancer worldwide and the fourth most common cause of death .

We aim to Study the expression of microRNA -375 in serum and rs4939827 SMAD-7 polymorphisms in DNA extracted from blood in colorectal cancer patients and correlate with control subjects.

Subject and methods:Blood samples were taken from 86 patients with colorectal cancer (different grades) and 36 normal persons to serve as a control group.

The following were done: history taking ,general examination, CBC, liver function test , kidney function tests and CEA.

Detection of Single nucleotide polymorphism (SNP) of SMAD7 (rs4939827) in DNA extracted from blood by Real time PCR.

microRNA -375 quantitation in serum by real time PCR.

Results:We found that the wild type (CC) genotype was higher in controls 36.1% than in cases 15.1%($p=0.01$). On the other hand there is no statistical significance difference as regards to mutant and heterozygotes genotypes.there is higher percentage of TT genotype in patients than in controls (33.7% vs 22.2%, $p=0.3$).Although there is higher percentage of CT genotype in patients than in controls (51.1% vs 41.7%, $p=0.4$). There is statistically significance difference between study groups (case and controls) as regards to distribution of different gene alleles with higher percentage of T-alleles in cases than controls(59.3% vs 43.1%, $p=0.02$) and C-alleles in controls than patients(56.9% vs 40.6%, $p=0.02$).

there is statistically significance difference with p-value <0.001 between study groups as regards to gene expression of mi-RNA 375 with **low** mean among cases .

Conclusion:miRNA-375 is down regulated in CRC patients and can be used as serum biomarker of CRC .Also SNP rs4939827 of SMAD-7 can be used as marker to diagnose CRC patients.