DETECTION OF COLORECTAL NEOPLASM USING PROMOTER METHYLATION OF STOOL DNA IN STOOL SAMPLES IN KOREAN PATIENTS

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Aim: Colorectal cancer screening using stool DNA has yielded greater detection rate than conventional fecal occult blood testing. The aim of this study was to determine the sensitivity and specificity of detection method for colorectal adenomas and colorectal carcinoma (CRC) using SFRP2, TFPI2, NDRG4, BMP3 and Vimentin promoter methylation.

Methods: The methylation status of SFRP2, TFPI2, NDRG4, BMP3 and Vimentin promoters in bisulfate modified stool DNA was investigated in blinded manner with methylation specific PCR from 40 endoscopically diagnosed healthy controls, 36 patients with colorectal adenoma and 35 patients with CRC.

Results: Methylated SFRP2, TFPI2, NDRG4, BMP3 and Vimentin promoters were detected in 60.0%, 31.4%, 68.8%, 40.0% and 5.7% of CRC samples and 27.8%, 27.8%, 27.8%, 33.3% and 5.6% of the colorectal adenoma. Their specificity of study using five markers is 80.3%, 81.6%, 76.3%, 76.3% and 97.4% of the CRC samples and 65.3%, 80.0%, 57.3%, 73.3% and 97.3% of colorectal adenoma, respectively.

Conclusions: Our results demonstrated that SFRP2, TFPI2, NDRG4, BMP3 and Vimentin promoter methylation in stool samples had high sensitivity and specificity for the detection of CRC. This new developed screening may be useful non-invasive alternative screening for CRC detection.

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