

Factors affecting the characteristics of advanced colorectal neoplasm in diabetic patients

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Background/Aims: In recent years, the incidence of diabetes mellitus (DM) and colorectal cancer have been increasing in Korea. It is reported that type 2 DM is associated with higher relative risk for cancers of colon and rectum. Hyperinsulinemia associated with type 2 DM leads to carcinogenesis through increased level of insulin-like growth factor 1. Most colorectal cancers are believed to arise from adenomatous polyps that progress from severe dysplasia to invasive carcinoma. The aim of this study is to evaluate the factors affecting on the incidence of advanced colorectal adenoma known as precancerous lesion in diabetic patients.

Methods: We retrospectively analyzed the data of the patients who have type 2 DM and had a colonoscopy from August 2008 to August 2016 in Kangwon National University Hospital. After having a colonoscopy, the patients were divided into two groups with or without advanced colorectal adenoma (Size \geq 1cm or High grade dysplasia or Villous adenoma or Cancer) by pathologic findings and then the data from the both groups were analyzed by multivariate logistic regression analysis. The cases of incomplete study, familial polyposis, inflammatory bowel disease, prior colon cancer and other malignancy were excluded.

Results: 463 patients were excluded in 990 enrolled patients from the study by exclusion criteria and the advanced adenomas were found in 69 patients (13%). table 1, table 2

Conclusions: The incidence of colorectal adenoma was higher in the male diabetic patients. The users of metformin showed lower tendency to have advanced colorectal adenoma but there was not statistical significance in multivariate analysis. Triglyceride and HDL cholesterol were significantly related to advanced colorectal adenoma. There is no relationship between the level of HbA1c and advanced colorectal adenoma incidence. Utilizing cutoff values for HbA1c 7%, there was no statistically significant difference in adenoma characteristics. Further study with more patients will be needed to know the factors affecting on the characteristics of advanced colorectal adenoma in diabetic mellitus.

Table 1. Baseline characteristics of the patients

	Advanced colorectal Adenoma (n=69)	Non-advanced colorectal Adenoma (n=458)	P-value		Advanced colorectal Adenoma (n=69)	Non-advanced colorectal Adenoma (n=458)	P-value
Male (n,%)	53 (76.8%)	293 (64.0%)	0.041	Aspirin (n,%)	36 (52.2%)	256 (55.9%)	0.604
Age (years), mean \pm SD	67.6 \pm 9.6	66.5 \pm 10.6	0.310	Exogenous insulin (n,%)	16 (23.2%)	87 (19.0%)	0.417
BMI (kg/m ²)	24.5 \pm 3.9	24.9 \pm 4.3	0.409	Sulfonylurea (n,%)	41 (45.5%)	87 (55.0%)	0.518
DM duration before colonoscopy (years)	11.0 \pm 9.5	10.9 \pm 9.0	0.258	Thiazolidinedione (n,%)	3 (4.3%)	38 (8.3%)	0.338
Smoking (n,%)				α -GI (n,%)	15 (11.1%)	19 (10.7%)	0.833
non-smoker	69	458		DPP4 inhibitor (n,%)	12 (8.9%)	11 (6.2%)	0.075
ex-smoker	29(42.0%)	179(39.1%)	0.141	Metformin (n,%)	81 (60.4%)	96 (54.2%)	0.047
current smoker	13(18.8%)	70(15.3)		Statin (n,%)	45(65.2%)	297(64.8)	0.952
Drinking (n,%)				HbA1c (%)	7.2 \pm 1.8	7.3 \pm 1.6	0.244
none	40 (58.0%)	185(40.4%)	0.063	Glucose (mg/dL)	154.4 \pm 112.0	156.7 \pm 89.3	0.551
< 1 drink/day	46 (34.3%)	47 (26.5%)		Total cholesterol (mg/dL)	149.6 \pm 46.0	157.7 \pm 54.5	0.998
\geq 1 drink/day	14 (20.3%)	105 (22.9%)		HDL-C (mg/dL)	40.5 \pm 25.7	39.0 \pm 11.8	0.067
				LDL-C (mg/dL)	86.1 \pm 37.0	85.9 \pm 49.0	0.963
				TG (mg/dL)	130.2 \pm 101.8	153.0 \pm 91.6	0.08

SD : standard deviation, BMI : body mass index, α -GI : alpha glucosidase inhibitor, DPP4 : dipeptidyl peptidase 4, HDL-C : high density lipoprotein cholesterol, LDL-C : low density lipoprotein cholesterol, TG : triglycerides

Table 2. Multivariate analysis assessing independent risk factor of advanced colorectal adenoma

	Odds ratio	95% CI	P-value
Alcohol	0.485	0.262-0.896	0.021
Smoking	2.227	1.297-3.996	0.004
Metformin	0.589	0.335-1.037	0.067
Triglyceride	0.995	0.991-1.000	0.029
HDL cholesterol	0.977	0.955-1.000	0.053