



COLORECTAL CANCER IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Abstract:

OBJECTIVE: To determine the frequency of colorectal cancer in patients with type 2 diabetes mellitus.

PATIENTS AND METHODS: The two-year hospital based cross-sectional multidisciplinary and multicenter study (2016-2018) was conducted at tertiary care hospitals and the data was also recruited from few private hospitals. All the patients presented with polyuria, polydipsia and polyphagia were explored for type 2 diabetes mellitus while the known cases of type 2 diabetes mellitus were also recruited and studied. After taking clinical history, physical examination and routine investigations of the patients having pain in abdomen, change in bowel habits (diarrhea or constipation), rectal bleeding, dark stools, weakness, fatigue and weight loss were explored for colon cancer by specific investigations as plain radiograph, barium studies, colonoscopy and biopsy followed by histopathology whereas the frequency / percentages (%) and means \pm SD computed for study variables.

RESULTS: During six-month study period total fifty patients were explored and study. The mean \pm SD for age (yrs) of population was 59.83 ± 8.31 . Regarding gender male 35 (70%) and female 15 (30%), residence as urban 27 (54%) and rural 23 (46%), smoking 35 (70%), alcohol 18 (36%) and colorectal carcinoma 21 (42%)

CONCLUSION: Diabetes mellitus significantly increased the risk of colon cancer

KEYWORDS: Diabetes mellitus, Malignancy and Colon Cancer.

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INTRODUCTION:

The patients with type 2 diabetes appear to have an increased risk of developing colorectal cancer compared with their non diabetic population.¹The global increase in incidence of type 2 diabetes, with an estimated total of 347 million adults suffering from type 2 diabetes in 2008, warrants further examination of the potential link between type 2 diabetes and colorectal cancer.² The former studies have found that colorectal cancer is more common in people with metabolic disturbances.^{3,4} The risk factors for colorectal cancer and type 2 diabetes include obesity, sedentary lifestyle, and high caloric diet.⁵ The increased risk of colorectal cancer associated with both type 2 diabetes and obesity and hyperinsulinemia was associated with increased tumor growth in experiments, and found positive associations between increased blood insulin levels and colorectal cancer incidence.^{6,7} Thus this study was conducted to explore the association between diabetes mellitus and colorectal carcinoma in our population.

PATIENTS AND METHODS:

The two year hospital based cross-sectional multidisciplinary and multicenter study (2016-2018) was conducted at tertiary care hospitals and the data was also recruited from few private hospitals. All the patients presented with polyuria,

polydipsia and polyphagia were explored for type 2 diabetes mellitus while the known cases of type 2 diabetes mellitus were also recruited and studied while the exclusion criteria were the patients with connective tissue and autoimmune disorders, intestinal perforation, hematological malignancies, pregnant women, abdominal tuberculosis, already on anti-inflammatory medication, antibiotics, corticosteroids, immunosuppressive drugs and the subjects with ileostomies or colostomies. After taking clinical history, physical examination and routine investigations of the patients having pain in abdomen, change in bowel habits (diarrhea or constipation), rectal bleeding, dark stools, weakness, fatigue and weight loss were explored for colon cancer by specific investigations as plain radiograph, barium studies, colonoscopy and biopsy followed by histopathology. The data was collected on pre-designed proforma and analyzed in SPSS to manipulate the mean \pm SD, frequencies and percentages.

RESULTS:

During six month study period total fifty patients were explored and study. The mean \pm SD for age (yrs) of population was 59.83 \pm 8.31. The demographical and clinical profile of study population is presented in Table 1.

TABLE 1: THE DEMOGRAPHICAL AND CLINICAL PROFILE OF STUDY POPULATION

Parameter	Frequency (N=50)	Percentage (%)
AGE (yrs)		
20-29	03	6.0
30-39	04	8.0
40-49	09	18
50-59	12	24
60-69	11	22
70+	11	22
GENDER		
Male	35	70
Female	15	30
RESIDENCE		
Urban	27	54
Rural	23	46
SMOKING		
Yes	35	70
No	15	30
ALCOHOL		
Yes	18	36
No	32	64
COLORECTAL CARCINOMA		
Yes	21	42
No	29	58

DISCUSSION:

In the current study, we found that diabetes mellitus significantly increased the colon cancer risk for both gender with significant increase was seen for male diabetic population. The positive association between DM and colon cancer is supposed to be due to the pathophysiology of diabetes as evidence has proved the mechanisms such as insulin resistance, hyperinsulinemia and increased in bioavailable IGF-1 stimulate tumor growth.⁸ Diabetic patients have a higher risk of postoperative complications than non diabetics, such as postoperative infection and incision healing delay and have a higher risk of cardiovascular death in the perioperative period and during chemotherapy, steroids and some immunosuppressive drugs may result in the worsening of diabetes.⁹ The higher risk of colon cancer incidence, the poorer prognosis and all these reasons may lead to an increased risk of mortality in diabetic patients.¹⁰

Diabetic participants have a higher detection rate of early colon cancer while early treatment might improve the prognosis of this malignancy and the mortality burden due to colon cancer can also be reduced.^{11, 12}

CONCLUSION:

Diabetes mellitus significantly increased the risk of colon cancer mortality for both gender and increase was seen among male diabetic population.

REFERENCES:

- Gonzalez N, Prieto I, Del Puerto-Nevado L, et al. 2017 update on the relationship between diabetes and colorectal cancer: epidemiology, potential molecular mechanisms and therapeutic implications. *Oncotarget*. 2017;8(11):18456
- Danaei G, Finucane MM, Lu Y, et al. Global Burden of Metabolic Risk Factors of Chronic Diseases Collaborating Group (Blood Glucose). National, regional, and global trends in fasting plasma glucose and diabetes prevalence since 1980: systematic analysis of health examination surveys and epidemiological studies with 370 country-years and 2.7 million participants. *Lancet*. 2011;378:31-40
- Zhu B, Wu X, Wu B, Pei D, Zhang L, Wei L. The relationship between diabetes and colorectal cancer prognosis: A meta-analysis based on the cohort studies. *PLoS One*. 2017;12(4):e0176068.
- Yao C, Nash GF, Hickish T. Management of colorectal cancer and diabetes. *J R Soc Med*. 2014;107(3):103-109.
- Mills KT, Bellows CF, Hoffman AE, Kelly TN, Gagliardi G. Diabetes mellitus and colorectal cancer prognosis: a meta-analysis. *Dis Colon Rectum*. 2013;56(11):1304-1319.
- Larsson SC, Wolk A. Obesity and colon and rectal cancer risk: a meta-analysis of prospective studies. *Am J Clin Nutr*. 2007;86:556-65
- Golay A, Chen YD, Reaven GM. Effect of differences in glucose tolerance on insulin's ability to regulate carbohydrate and free fatty acid metabolism in obese individuals. *J Clin Endocrinol Metab* 1986;62:1081-1088
- Sen S, He Y, Koya D, Kanasaki K. Cancer biology in diabetes. *J Diabetes Investig*. 2014;5:251-64.
- Giovannucci E, Harlan DM, Archer MC, et al. Diabetes and cancer: a consensus report. *Diabetes Care*. 2010;33(7):1674-1685.
- Abudawood M. Diabetes and cancer: A comprehensive review. *J Res Med Sci*. 2019;24:94.
- Woo H, Lee J, Lee J, et al. Diabetes Mellitus and Site-specific Colorectal Cancer Risk in Korea: A Case-control Study. *J Prev Med Public Health*. 2016;49(1):45-52.
- Mills KT, Bellows CF, Hoffman AE, Kelly TN, Gagliardi G. Diabetes mellitus and colorectal cancer prognosis: a meta-analysis. *Dis Colon Rectum*. 2013;56(11):1304-1319.