

Analysis of Colonoscopic Diagnosis in Terms of Age, Gender and Symptoms

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ABSTRACT

Objective: It was aimed to analyze the relationships between gender, age, and symptom combinations, and the diagnoses determined in colonoscopy.

Methods: Demographic data, symptoms, and colonoscopy results of all patients who underwent colonoscopy in our hospital's endoscopy unit in 2018 were obtained from the hospital records and analyzed.

Results: The mean age was 54.5 ± 14.6 years. A total of 66.3% of the patients were over 50 years old. A total of 7.3% of colonoscopy procedures could not be completed. In 168 patients (5.4%) there was fecal occult blood (FOB) positivity, 1900 (60.7%) had rectal macroscopical bleeding, 1893 (60.4%) had constipation, and 1975 (63.1%) had abdominal pain. No abnormal findings were found in 1616 (51.6%) of the patients as a result of colonoscopy, 699 (22.3%) had polyps, 43 (1.4%) had cancer-like masses. The polyp detection rate was significantly higher in patients with positive FOB alone ($p=0.003$) or patients with rectal bleeding and/or constipation ($p=0.001$) and significantly lower in patients with constipation ($p=0.034$). The rates of FOB positivity ($p<0.001$), polyp ($p<0.001$), cancer-like mass ($p=0.008$), and diverticular lesions ($p<0.001$) were significantly higher in the patients over 50 years of age. The rates of polyps ($p<0.001$) and diverticular lesions ($p<0.001$) were significantly higher in FOB-positive patients.

Conclusion: Findings of the present study showed that patients with FOB positivity or rectal bleeding showed significant pathologies in their colonoscopic examinations, especially over the age of 50, an increase in the rate of the colorectal polyps or cancer-like masses, and a reduced possibility of abnormal findings or malignancies in patients with constipation.

INTRODUCTION

Colon malignancies are one of the most common causes of death in the world. In particular, early recognition of malignant lesions is critical for morbidity and mortality.^[1-3] Colonoscopy is an important examination method that enables easy and rapid detection of most of the colon pathologies.^[3-7]

Fecal occult blood (FOB) positivity or rectal bleeding is an independent indication for colonoscopy. In addition, the presence of abdominal pain, constipation, or the combination of different symptoms, together with the patient's history, and some risk factors are evaluated and it is decided whether colonoscopy is indicated.^[4-7]

In the present study, it was aimed to examine the diagnostic benefits obtained from colonoscopy by analyzing the relationships between the patients' gender, age, and symptom combinations and colonoscopic diagnoses more clearly.

MATERIALS AND METHODS

The present study was approved by the local ethics committee and was planned retrospectively (Date: 27.03.2019/ No: 2019/514/150/5).

Patients and tests

All patients who underwent colonoscopy in the endoscopy unit of our hospital in a one-year period between January 1 and December 31, 2018; were included in the study. Patients with active bleeding, history of colon operation, history of inflammatory bowel disease, or lesions that could cause bleeding in upper gastrointestinal (GIS) endoscopy were excluded from the study. Preliminary diagnoses were obtained from the hospital automation system according to the demographic information of the patients, the symptoms of the patients, and the colonoscopy report.

Statistical analysis

All statistical analyzes in the study were performed us-

ing SPSS 25.0 software (IBM SPSS, Chicago, IL, USA). Descriptive data are given as numbers and percentages. Comparisons between groups in terms of categorical variables were made with Pearson's Chi-Square test. The compatibility of continuous variables with normal distribution was confirmed by the Kolmogorov-Smirnov Test. The differences between the groups for continuous variables were analyzed using the Independent Samples' t-Test. The results were evaluated within the 95% confidence interval, and $p < 0.05$ values were considered significant. Bonferroni correction was made where appropriate.

RESULTS

The mean age of the patients was 54.5 ± 14.6 (range: 6–94; median age 55.5 [IQR: 20]) years. A total of 1692 (54%) of the patients were men and 1440 (46%) were women. A total of 66.3% of the patients were over 50 years old, 5.9% were under 30. A total of 7.3% of colonoscopy procedures could not be completed. In 168 patients (5.4%), FOB was positive, 1900 (60.7%) had rectal bleeding, 1893 (60.4%) had constipation, and 1975 (63.1%) had abdominal pain. The most common symptom associations were bleeding + constipation + abdominal pain (1625 patients; 51.9%) and constipation + abdominal pain (169 patients; 5.4%) (Table 1).

The rate of abnormal colonoscopy findings was significantly higher in patients with rectal bleeding alone ($p < 0.001$) or rectal bleeding and/or constipation with FOB positivity ($p = 0.026$), and it was significantly lower in the patients with constipation alone ($p = 0.029$) or bleeding + constipation ($p < 0.001$). The rate of polyp detection was significantly higher in patients with positive FOB alone ($p = 0.003$) or patients with rectal bleeding and/or constipation ($p = 0.001$) and significantly lower in patients with constipation ($p = 0.034$). The rate of detection of diverticular lesions was significantly higher in patients with FOB positivity alone ($p < 0.001$), and significantly lower in patients with bleeding + constipation ($p = 0.009$) (Table 2).

No abnormal findings were found in 1616 (51.6%) of the patients as a result of colonoscopy, 699 (22.3%) had polyps, 43 (1.4%) had cancer, 230 (7.3%) had diverticular lesions (Table 3).

FOB positivity ($p = 0.012$), constipation ($p = 0.002$) and pain ($p < 0.001$) rates were found to be significantly higher in women than in men. The rate of patients with no abnormal findings in men after colonoscopy ($p < 0.001$) was found to be significantly lower, and the rate of polyp detection ($p < 0.001$) was found to be significantly higher. The rates of rectal bleeding ($p = 0.858$), cancer-like mass ($p = 0.142$) and diverticular lesions ($p = 0.972$) were similar between the genders (Table 3).

In the analysis performed by age, the rate of FOB positivity was found to be significantly higher in patients over the age of 50 ($p < 0.001$), the rate of patients without abnormal findings was significantly lower ($p < 0.001$), and the rate of rectal bleeding was significantly lower ($p < 0.001$). The rate of pain was significantly higher in the 30–50 age group

Table 1. Distribution of the symptoms

Symptoms	n	%
Symptom combinations		
Bleeding + Constipation + Abdominal pain	1625	51.9
Bleeding	235	7.5
Constipation + Abdominal pain	169	5.4
Abdominal pain	167	5.3
FOB positivity	157	5.0
Constipation	69	2.2
Bleeding + Constipation	22	0.7
Bleeding + Abdominal pain	11	0.4
FOB positivity + Bleeding + Constipation	5	0.2
FOB positivity + Constipation + Abdominal pain	2	0.1
FOB positivity + Bleeding	2	0.1
FOB positivity + Abdominal pain	1	0.0
FOB positivity + Constipation	1	0.0
Other*	666	21.3
General symptoms		
FOB	168	5.4
Bleeding	1900	60.7
Constipation	1893	60.4
Abdominal pain	1975	63.1

*Dyspepsia, diarrhea, bloating, anemia, hemorrhoids, etc. It includes other symptoms. FOB: Fecal occult blood.

compared to the other groups ($p = 0.007$). The rates of polyp ($p < 0.001$), cancer-like mass ($p = 0.008$) and diverticular lesions ($p < 0.001$) were found to be significantly higher in the group over 50 years of age. The rate of polyp detection was significantly lower in the group under 30 years of age compared to the other groups ($p < 0.001$) (Table 4).

The incidence of rectal bleeding, constipation and pain was significantly lower in the FOB positive group compared to the FOB-negative group ($p < 0.001$ for each). The rates of polyp ($p < 0.001$) and diverticular lesions ($p < 0.001$) were significantly higher, and the rate of patients with no abnormal findings ($p = 0.03$) was significantly lower in patients with FOB positivity compared to those with FOB negativity (Table 5).

In the analysis of symptoms by age, the mean age of patients with positive FOB or any abnormal findings was significantly higher than those with any pathological results ($p < 0.001$). The mean age was found to be significantly higher in patients with polyps ($p < 0.001$), cancer-like mass ($p = 0.004$) or diverticular lesions ($p < 0.001$) compared to patients without these pre-diagnoses. The mean age was significantly lower in those with rectal bleeding ($p < 0.001$) or abdominal pain ($p = 0.004$) (Table 6).

The rates of abdominal pain ($p < 0.001$) and patients with no abnormal findings ($p < 0.001$) were found to be significantly higher in the group with constipation, and the rates of cancer ($p = 0.012$) and diverticular lesions ($p = 0.025$) were found to be significantly lower.

Table 2. Comparison of colonoscopy results according to symptom association

	Incomplete colonoscopy	Normal finding	Polyp	Cancer-like lesion	Diverticulous lesion
	n (%)	n (%)	n (%)	n (%)	n (%)
FOB (n=157)					
Negative	222 (7.5)	1545 (51.9)	649 (21.8)	42 (1.4)	207 (7)
Positive	6 (3.8)	71 (45.2)	50 (31.8)	1 (0.6)	23 (14.6)
p	0.087	0.101	0.003	0.416	<0.001
Bleeding (n=246)					
Absent	211 (7.3)	1519 (52.6)	635 (22)	37 (1.3)	212 (7.3)
Present	17 (6.9)	97 (39.4)	64 (26)	6 (2.4)	18 (7.3)
p	0.816	<0.001	0.147	0.134	0.987
Constipation (n=238)					
Absent	206 (7.1)	1477 (51)	659 (22.8)	42 (1.5)	211 (7.3)
Present	22 (9.2)	139 (58.4)	40 (16.8)	1 (0.4)	19 (8)
p	0.225	0.029	0.034	0.189	0.694
Bleeding + constipation (n=1649)					
Absent	102 (6.9)	672 (45.3)	341 (23)	26 (1.8)	128 (8.6)
Present	126 (7.7)	944 (57.3)	358 (21.7)	17 (1)	102 (6.2)
p	0.401	<0.001	0.41	0.084	0.009
FOB positivity + bleeding and/or constipation (n=11)					
Absent	228 (7.3)	1614 (51.7)	692 (22.2)	43 (1.4)	228 (7.3)
Present	0 (0)	2 (18.2)	7 (63.6)	0 (0)	2 (18.2)
p	0.352	0.026	0.001	0.695	0.167

FOB: Fecal occult blood.

Table 3. Symptom and diagnosis rates by gender

	Total (n=3132)	Male (n=1692)	Female (n=1440)	p
	n (%)	n (%)	n (%)	
Age (years)				
<30	185 (5.9)	107 (6.3)	78 (5.4)	0.029
30–50	872 (27.8)	439 (25.9)	433 (30.1)	
>50	2075 (66.3)	1146 (67.7)	929 (64.5)	
Incomplete colonoscopy	228 (7.3)	135 (8.0)	93 (6.5)	0.103
Symptoms				
FOB	168 (5.4)	75 (4.4)	93 (6.5)	0.012
Bleeding	1900 (60.7)	1024 (60.5)	876 (60.8)	0.858
Constipation	1893 (60.4)	980 (57.9)	913 (63.4)	0.002
Pain	1975 (63.1)	1019 (60.2)	956 (66.4)	<0.001
Diagnosis				
Normal finding	1616 (51.6)	763 (45.1)	853 (59.2)	<0.001
Polyp	699 (22.3)	444 (26.2)	255 (17.7)	<0.001
Cancer	43 (1.4)	28 (1.7)	15 (1.0)	0.142
Diverticulum	230 (7.3)	124 (7.3)	106 (7.4)	0.972
Other	544 (17.4)	333 (19.7)	211 (14.7)	<0.001

Chi square test was used. FOB: Fecal occult blood.

DISCUSSION

Colonoscopy is an important screening method that de-

termines the development of colon cancer or lesions that may be precursors for cancer in patients at risk and with some important symptoms.^[8,9]

Table 4. Symptom and diagnosis rates by age groups

	Age groups			p
	<30 years	30–50 years	>50 years	
	n (%)	n (%)	n (%)	
Incomplete colonoscopy	19 (10.3)	52 (6.0)	157 (7.6)	0.084
Symptoms				
FOB	0 (0)	15 (1.7)	153 (7.4)	<0.001
Bleeding	122 (65.9)	573 (65.7)	1205 (58.1)	<0.001
Constipation	116 (62.7)	547 (62.7)	1230 (59.3)	0.175
Pain	118 (63.8)	587 (67.3)	1270 (61.2)	0.007
Diagnosis				
Normal finding	124 (67.0)	590 (67.7)	902 (43.5)	<0.001
Polyp	6 (3.2)	115 (13.2)	578 (27.9)	<0.001
Cancer	1 (0.5)	4 (0.5)	38 (1.8)	0.008
Diverticulum	0 (0)	18 (2.1)	212 (10.2)	<0.001

Chi square test was used. FOB: Fecal occult blood.

Table 5. Symptom and diagnosis rates in patients with and without occult blood in stool

	FOB (-)	FOB (+)	p
	n (%)	n (%)	
Incomplete colonoscopy	222 (7.5)	6 (3.6)	0.057
Accompanying symptom			
Bleeding	1893 (63.9)	7 (4.2)	<0.001
Constipation	1885 (63.6)	8 (4.8)	<0.001
Pain	1972 (66.5)	3 (1.8)	<0.001
Diagnosis			
Normal finding	1543 (52.1)	73 (43.5)	0.03
Polyp	642 (21.7)	57 (33.9)	<0.001
Cancer	42 (1.4)	1 (0.6)	0.373
Diverticulum	205 (6.9)	25 (14.9)	<0.001

Chi square test was used. FOB: Fecal occult blood.

In order for the colonoscopy procedure to be completed, preliminary preparations should be made properly. Intestinal cleansing, the most important of these preparations, should be done in the best way. Poor bowel cleansing may cause some lesions to be undetectable, incomplete colonoscopy procedure, repetition of colonoscopy.^[10,11] Apart from this, conditions such as pain, insufficient sedation, and curved bowel may prevent the completion of the colonoscopy.^[12]

Kizilcik-Özkan et al.^[10] reported that 13% of colonoscopy procedures could not be completed due to insufficient bowel cleansing and that there was no difference between gender and age groups in terms of incomplete colonoscopy rates. In the present study, 7.3% of the colonoscopy procedures could not be completed, and the rates of incomplete colonoscopy were similar between both genders and age groups. Ratnasingham et al.^[13] reported that the rate of incomplete colonoscopy was significantly higher in

Table 6. Comparisons in terms of average age between gender, symptoms, and diagnoses

	Male		Female		p
	Mean	SD	Mean	SD	
Gender	54.8	14.8	54.2	14.5	0.263
	Present		Absent		p
	Mean	SD	Mean	SD	
Symptoms					
FOB	59.0	8.1	54.3	14.9	<0.001
Bleeding	53.5	14.8	56.1	14.3	<0.001
Constipation	54.2	14.7	55.1	14.6	0.099
Pain	54.0	14.6	55.5	14.6	0.004
Diagnosis					
Normal finding	51.0	14.4	58.3	14.0	<0.001
Polyp	59.5	11.6	53.1	15.1	<0.001
Cancer	60.9	12.8	54.4	14.6	0.004
Diverticulum	65.4	10.6	53.7	14.6	<0.001

Independent Samples' t-test was used. FOB: Fecal occult blood.

those with constipation. However, in the present study, the rates of incomplete colonoscopy were not different in patients with constipation, FOB positivity or rectal bleeding. These findings show that the failure to complete the colonoscopy procedure is largely independent of the gender, age groups, and symptoms of the patients.

The high rate of abnormal findings in patients who underwent colonoscopy is a finding indicating the necessity of this method and the correct determination of indications.^[4–7,14] The rate of detecting normal colonoscopy findings in patients undergoing colonoscopy has been reported to be between 34–65% in some studies.^[15–21] In the present study, no abnormal findings were found in 51.6% of the patients as a result of colonoscopy. These findings show

that in approximately half of the cases with colonoscopy indication, colonoscopy detects a pathological finding. This finding means that the indications for colonoscopy have been properly evaluated and that the colonoscopy provides useful data.

Studies have reported that the detection rate of polyps with carcinoma precursor lesions, in patients undergoing colonoscopy screening is in the range of 11–39%.^[16–20,22–24] In the present study, 22.3% of the patients had polyps. These findings show that approximately one-quarter of the patients undergoing colonoscopy have polyps. This ratio means that colonoscopy provides important data for detecting lesions that may be a precursor of life-threatening colorectal cancer. In some studies, the rate of detecting a cancer-like mass in patients undergoing colonoscopy was reported to be between 3–11%.^[15,17–19,22,24,25] In the present study, a mass thought to be cancer was detected in 1.4% of the patients. Our rate may have been lower than other studies since only colonoscopy results were obtained and pathology reports were not included in the study. All these findings show that cancer can be detected at rates that are not low in patients who undergo colonoscopy, and that colonoscopy provides very critical preliminary data on this subject.

In some studies, diverticular lesion rates were reported as 4–8% in patients who underwent colonoscopy.^[15,18,19,22] In the present study, diverticular lesions were observed in 7.3% of the patients. These findings show that there are not very low rates of diverticular lesions in patients with colonoscopy indications.

FOB test is one of the screening methods used for colon cancer besides being performed for many purposes. Colonoscopy or upper GIS endoscopy is performed in patients with FOB positivity and suspected colorectal disease.^[11,16,26,27] In the present study, the rate of rectal bleeding, constipation and pain was found to be significantly lower in the FOB-positive group compared to the FOB-negative group. This finding shows that FOB positivity can be the only symptom for colonoscopy indication in most patients and the importance of the FOB test. Colonoscopy results were reported to be normal in approximately 60% of FOB-positive patients.^[16] Mayir et al.^[20] found normal colonoscopy findings in 37% of FOB-positive patients. In the present study, normal colonoscopy findings were detected in 43.5% of the FOB-positive patients. In addition, it was determined that the rate of abnormal colonoscopy findings in FOB positivity with constipation was significantly higher. These findings show that colonic pathological findings can be detected at colonoscopy in approximately half of the patients with FOB positivity. This shows that the FOB test is important in determining the presence of colorectal disease.

FOB positivity or rectal bleeding often occurs in the presence of colorectal cancer or polyps.^[11,26,27] Steele et al.^[28] diagnosed colorectal carcinoma in 12% of the patients in the colonoscopy screening they performed in FOB-positive patients. Mayir et al.^[20] reported the rate of malig-

nant lesions as 1.6% in FOB-positive patients. Brenner et al.^[25] found that the rate of cancer in patients with positive FOB test was significantly higher than in FOB-negative patients. In the present study, the rate of polyp detection was found to be significantly higher in the FOB-positive patients compared to those with FOB negativity, and the rate of patients with no abnormal findings was found to be significantly lower, but there was no significant difference between the groups in terms of cancer rates. In the present study, only the results of colonoscopy were evaluated, and the definitive diagnosis rates could not be analyzed because the pathology results of polyps were not examined. Therefore, these findings may suggest that the overall polyp and cancer rates are significantly higher in FOB-positive patients. These findings support that FOB positivity is a good indicator for lesions such as polyps that are suspected to be cancer or maybe a precursor of it. In diverticulosis cases, bleeding can often be seen in the GIS tract.^[29,30] Mayir et al.^[20] reported the rate of detecting diverticular lesions in colonoscopy in FOB-positive patients as 19%. In the present study, diverticular lesions were detected in 14.9% of FOB-positive patients, and this rate was found to be significantly higher than in FOB-negative patients. This finding shows that FOB positivity is important in determining the presence of diverticular disease.

In the present study, the rate of patients without constipation, pain, and abnormal findings was found to be significantly higher in the patient group with rectal bleeding, and the rate of diverticular lesions was found to be significantly lower. However, the detection rate of abnormal findings was significantly higher in patients with lone rectal bleeding, and significantly lower in patients with bleeding with constipation together. In addition, it was observed that the mean age in those with rectal bleeding was significantly lower than those without these symptoms. These findings show that rectal bleeding alone is sufficient for the indication for colonoscopy, that the probability of detecting abnormal pathology is high in these patients, but if there is concomitant constipation in the clinical picture, these possibilities are significantly reduced. Accordingly, it seems that differentiating bleeding caused by constipation and bleeding other than this may affect the approach to colon pathologies. The fact that the mean age was found to be significantly lower in those with rectal bleeding and the signs of cancer and polyps increased significantly with age indicates that this symptom should be evaluated together with the age of the patient.

In the present study, the rate of patients with only constipation or constipation + bleeding was found to be significantly higher than those without abnormal findings. In general, cancer and diverticular lesion rates were found to be significantly lower in patients with constipation. In addition, the rate of polyps were found in patients with only constipation, and the rate of diverticular lesions in those with bleeding + constipation were found to be significantly lower. These findings show that most of the patients presenting with constipation have normal findings in colo-

noscopy, that this symptom can distract from cancer and diverticular disease, and that age is more effective than constipation in the formation of diverticular lesions.

In the present study, FOB positivity, constipation, and abdominal pain rates were found to be significantly higher in women compared to men. Rectal bleeding, cancer-like mass, and diverticular lesions rates were found to be similar between genders. The rate of patients with no abnormal findings was significantly lower in men, and the rate of polyp detection was significantly higher. These findings show that symptoms such as constipation and abdominal pain and occult bleeding findings, which are indications for colonoscopy, are more common in women compared to men, but the rate of abnormal findings and polyps in colonoscopy is lower. Accordingly, it is seen that intestinal originated complaints and findings in women are mostly caused by reasons other than cancer, polyps, or diverticular disease.

In the present study, the mean age was found to be significantly higher in patients with any abnormal findings, polyps, cancer-like masses, or diverticular lesions in the analysis performed by age. In addition, the rate of FOB positivity, polyps, cancer-like masses and diverticular lesions were significantly higher in the group above the age of 50, and the rate of patients without abnormal findings was significantly lower. The rate of pain was significantly higher in the 30–50 age group compared to the other groups. The polyp detection rate was found to be significantly lower in the group under 30 compared to the other groups. All these findings show that the frequency of cancer, polyps, or diverticular lesions above the age of 50 is as expected, and that colonoscopy in these patients provides important data, especially after the detection of occult bleeding.

There were some limitations in the present study. Pathology reports were not included in the study, only colonoscopy reports were evaluated and pre-diagnoses were analyzed accordingly. Therefore, no evaluation could be made in terms of definitive diagnoses. In addition, due to the cross-sectional planning of this study, it was not evaluated whether the patients developed cancer in the following periods. The findings of the present study show that colonoscopic examinations of FOB-positive patients with/ or rectal bleeding show significant pathologies, with an increase in the rate of colorectal polyps or cancer-like masses, especially in patients with constipation, and with a decrease in the possibility of abnormal findings or malignancy in patients with constipation. In conclusion, colonoscopic screenings performed by considering the symptoms according to age groups and gender increase the effectiveness in predicting and determining the presence of abnormal colorectal pathology in suspected patients.

Ethics Committee Approval

This study approved by the Kartal Dr. Lutfi Kırdar Training and Research Hospital Clinical Research Ethics Committee (Date: 27.03.2019, Decision No: 2019/514/150/5).

Informed Consent

Retrospective study.

Peer-review

Internally peer-reviewed.

Authorship Contributions

Concept: H.U., İ.E.; Design: H.U., İ.E.; Supervision: H.U., İ.E.; Fundings: H.U., İ.E.; Materials: H.U., İ.E.; Data: H.U., İ.E.; Analysis: H.U., İ.E.; Literature search: H.U., İ.E.; Writing: H.U., İ.E.; Critical revision: H.U., İ.E.

Conflict of Interest

None declared.

REFERENCES

1. Thanikachalam K, Khan G. Colorectal cancer and nutrition. *Nutrients* 2019;11:164. [CrossRef]
2. Yiu AJ, Yiu CY. Biomarkers in colorectal cancer. *Anticancer Res* 2016;36:1093–102. [CrossRef]
3. Simon K. Colorectal cancer development and advances in screening. *Clin Interv Aging* 2016;11:967–76. [CrossRef]
4. Ladabaum U, Mannalithara A, Meester RGS, Gupta S, Schoen RE. Cost-effectiveness and national effects of initiating colorectal cancer screening for average-risk persons at age 45 years instead of 50 years. *Gastroenterology* 2019;157:137–48. [CrossRef]
5. Rastogi A, Wani S. Colonoscopy. *Gastrointest Endosc* 2017;85:59–66. [CrossRef]
6. Kaminski MF, Zagorowicz E. Colonoscopy. *Gastrointest Endosc* 2014;80:400–3. [CrossRef]
7. Rex DK. Colonoscopy. *Gastrointest Endosc* 2013;78:444–9. [CrossRef]
8. Waye JD, Thomas-Gibson S. How I do colonoscopy. *Gastrointest Endosc* 2018;87:621–4. [CrossRef]
9. Abuoglu HH, Gençtürk M, Günay E, Özkan E, Gül MO, Müftüoğlu MAT. Complications associated with colonoscopic interventions: the 10-year experience of a surgery clinic. *South Clin Ist Euras* 2018;29:19–23. [CrossRef]
10. Kızılcık Özkan Z, Ünver S, Yıldız Fındık Ü, Fidan S, Albayrak D. A retrospective analysis of patients who underwent a colonoscopy to determine the sensitivity of incomplete colonoscopy procedures due to an insufficient intestinal preparation. *Endoscopy Gastrointestinal* 2016;24:78–82.
11. Brahmania M, Park J, Svarta S, Tong J, Kwok R, Enns R. Incomplete colonoscopy: Maximizing completion rates of gastroenterologists. *Can J Gastroenterol* 2012;26:589–92. [CrossRef]
12. Beck KR, Shergill AK. Colonoscopy in acute lower gastrointestinal bleeding: diagnosis, timing, and bowel preparation. *Gastrointest Endosc Clin N Am* 2018;28:379–90. [CrossRef]
13. Ratnasingham K, Lo T, Jamal K, Varatharajan L, Tabbakh Y, Kaderbhai H, West NJ. The role of colonoscopy and CT colonography in patients presenting with symptoms of constipation. *Br J Radiol* 2017;90:20160147. [CrossRef]
14. Kastenber D, Bertiger G, Brogadir S. Bowel preparation quality scales for colonoscopy. *World J Gastroenterol* 2018;24:2833–43.
15. Bjerrum A, Andersen O, Fischer A, Lindenberg J, Lyng E. Long-term risk of colorectal cancer after negative colonoscopy in a Danish gFOBT screening cohort. *Int J Cancer* 2017;141:503–11. [CrossRef]
16. Utku ÖG, Ergül B, Oğuz D. Evaluation of colonoscopic and pathological outcomes of patients who have undergone colonoscopy with a positive fecal occult blood screening test. *Akademik Gastroenteroloji Dergisi* 2018;17:17–20. [CrossRef]
17. Nadir I, Türkay C, Kasapoglu B, Bayram Y, Aydoğan T. Is colonoscopic screening necessary in the elderly population? *Akademik Gastroenteroloji* 2011;10:28–31.

18. Özsoy M, Celep B, Ersen O, Özkececi T, Bal A, Yılmaz S, Arıkan Y. Our results of lower gastrointestinal endoscopy: Evaluation of 700 patients. *Ulusal Cer Derg* 2014;30:71–5. [CrossRef]
19. Yigit T. Kolonoskopi deneyimlerimiz: Ardışık 983 hastanın irdelenmesi. *Kolon Rektum Hast Derg* 2007;17:154–9.
20. Mayır B, Ensari CÖ, Durhan A, Cöpelci Y. Colonoscopy findings in patients who have positive fecal occult blood test for colorectal cancer screening. *Türk J Colorectal Dis* 2018;28:27–30. [CrossRef]
21. Bowles CJ, Leicester R, Romaya C, Swarbrick E, Williams CB, Epstein O. A prospective study of colonoscopy practice in the UK today: are we adequately prepared for national colorectal cancer screening tomorrow? *Gut* 2004;53:277–83. [CrossRef]
22. Bozdag A, Gültürk B, Aksu A. Lower gastrointestinal endoscopies results. *JCEI* 2014;5:580–2. [CrossRef]
23. Katičić M, Antoljak N, Kujundžić M, Stamenić V, Skoko Poljak D, Kramarić D, et al. Results of National Colorectal Cancer Screening Program in Croatia (2007-2011). *World J Gastroenterol* 2012;18:4300–7. [CrossRef]
24. Joukar F, Majid SK, Fani A, Nazari N, Mansour-Ghanaei F. Colonoscopy outcome in North of Iran (Guilan): 2006-2009. *Int J Clin Exp Med* 2012;5:321–5.
25. Brenner H, Hoffmeister M, Birkner B, Stock C. Men with negative results of guaiac-based fecal occult blood test have higher prevalences of colorectal neoplasms than women with positive results. *Int J Cancer* 2014;134:2927–34. [CrossRef]
26. Sengupta N. The role of colonoscopy and endotherapy in the management of lower gastrointestinal bleeding. *Best Pract Res Clin Gastroenterol* 2019;42-43:101615. [CrossRef]
27. Lhewa DY, Strate LL. Pros and cons of colonoscopy in management of acute lower gastrointestinal bleeding. *World J Gastroenterol* 2012;18:1185–90. [CrossRef]
28. Steele RJ, McClements PL, Libby G, Black R, Morton C, Birrell J, et al. Results from the first three rounds of the Scottish demonstration pilot of FOBT screening for colorectal cancer. *Gut* 2009;58:530–5.
29. Rezapour M, Ali S, Stollman N. Diverticular disease: an update on pathogenesis and management. *Gut Liver* 2018;12:125–32. [CrossRef]
30. DiSiena MS, Birk JW. Diverticular disease: the old, the new, and the ever-changing view. *South Med J* 2018;111:144–50. [CrossRef]

Yaş, Cinsiyet ve Semptomlara Göre Kolonoskopik Tanıların Analizi

Amaç: Bu çalışmada cinsiyet, yaş ve semptom kombinasyonlarıyla kolonoskopide belirlenen tanıları arasındaki ilişkiler analiz edilmiştir.

Gereç ve Yöntem: Çalışmada 2018 yılında hastanemiz endoskopi ünitesinde kolonoskopi uygulanan tüm hastalara ait demografik veriler, semptomlar ve kolonoskopi sonuçları hastane otomasyon sistemi kayıtlarından elde edildi ve incelendi.

Bulgular: Ortalama yaşı 54.5±14.6 (aralık: 6–94) olan hastaların 1692'si (%54) erkek, 1440'ı (%46) kadındı. Hastaların %66.3'ü 50 yaş üzerinde, %5.9'u 30 yaş altındaydı. Kolonoskopi işlemlerinin %7.3'ü tamamlanamamıştı. Hastaların 168'inde (%5.4) gaitada gizli kan (GGK) pozitifliği, 1900'ünde (%60.7) rektal kanama, 1893'ünde (%60.4) konstipasyon, 1975'inde (%63.1) karın ağrısı mevcuttu. En sık semptom birliktelikleri kanama + konstipasyon + karın ağrısı (1625 hasta: %51.9) ve konstipasyon + karın ağrısı (169 hasta: %5.4) idi. Kolonoskopi sonucunda hastaların 1616'sında (%51.6) anormal bulgu saptanmadı, 699'unda (%22.3) polip, 43'ünde (%1.4) kanser olduğu düşünülen kitle, 230'unda (%7.3) divertikülöz lezyon, 544'ünde (%17.4) diğer ön tanıları konuldu. Polip saptanma oranı tek başına GGK pozitifliği olanlarda (p=0.003) veya GGK pozitifliği ile birlikte rektal kanama ve/veya konstipasyonu (p=0.001) olan hastalarda anlamlı yüksek, konstipasyonu olanlarda (p=0.034) anlamlı düşüktü. Yaşa göre yapılan analizde 50 yaş üstü hastalarda GGK pozitiflik oranı diğer gruplara göre anlamlı yüksek (p<0.001), rektal kanama oranı ise anlamlı düşük (p<0.001) bulundu, 30–50 yaş grubunda ağrı oranı diğer gruplara göre anlamlı yüksekti (p=0.007). Polip (p<0.001), kanser görünümlü kitle (p=0.008) ve divertikülöz lezyon (p<0.001) oranları 50 yaş üzeri grupta diğer gruplara göre anlamlı yüksek bulundu. GGK pozitif olanlarda polip (p<0.001) ve divertikülöz lezyon (p<0.001) saptanma oranları anlamlı yüksek, anormal bulgu saptanmayan hasta oranı (p=0.03) ise anlamlı düşüktü.

Sonuç: Çalışmamız verileri GGK pozitifliği ya da rektal kanaması olan hastaların kolonoskopik incelemelerinde önemli patolojiler saptandığını, özellikle 50 yaş üzerinde kolorektal polip ya da kanser görünümlü kitle oranlarında artış olduğunu, konstipasyonu olan hastalarda ise anormal bulgu ya da malignite olasılığının azaldığını göstermiştir.

Anahtar Sözcükler: Divertikül; gaitada gizli kan; kanser; kolonoskopi; polip; rektal kanama.