

Evaluation of patients' anxiety on colorectal cancer screening in global health burde conditions such as COVID-19

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ABSTRACT

Aims: Colorectal cancer (CRC) remains to be the third most common cancer and could be detected earlier with screening programmes. The coronavirus disease 2019 (COVID-19) pandemic has disrupted routine health care globally including CRC screening. In this study we aimed to assess and compare the Hospital Anxiety and Depression Scale (HADS) scores in patients who were planned to undergo screening before and during COVID-19.

Methods: In this cross sectional study we compared data of patients who were planned to undergo CRC screening during COVID-19 period (February 1 to February 28, 2021) with those of the same period of 2019 (pre-COVID-19). Groups were compared in terms of age, gender, education level, incidence of unwillingness and cancelling the colonoscopy for CRC and HADS scores.

Results: The mean ($\pm$ SD) age of the whole cohort was 51.1 ($\pm$ 12.45) years. Sixteen (28%) of the patients were unwilling to undergo screening and 3 (5.2%) of them cancelled the colonoscopy in COVID-19 period group, however none of the patients had an anxiety to undergo screening and cancelled colonoscopy in pre-COVID-19 group. The subscales of Hospital Anxiety and Depression Scale; HADS-A and HADS-D scores were significantly higher in COVID-19 period group.

Conclusion: CRC prevention efforts depend largely on screening. Therefore, the effectiveness of the screening method depends both on the test sensitivity, specificity and the patients' compliance. Due to the fear of patients' to be exposed to COVID-19, the rate of CRC screening has been decreased worldwide. Especially in the global health burden circumstances like COVID-19, less invasive, easily applicable and screening tests with high sensitivity and specificity could be the preferred option in order to improve patients' compliance.

Keywords: Colorectal cancer, colonoscopy, screening, COVID-19, oncology, Hospital Anxiety and Depression Scale, HADS, patient compliance

INTRODUCTION

World Health Organization (WHO) announced global pandemic of COVID-19 in March 2020 and in response to the increase in the prevalence of this disease, the Centers for Disease Control and Prevention (CDC) implemented guidelines to diminish exposure and reduce transmission risk especially for people those considered high risk for COVID-19.¹ Because of the fear of developing COVID-19 infection, cancer screening programs, have been disrupted in many countries.² It is well known that colorectal cancer (CRC) is the second common leading cause of cancer death in the world.³ Therefore CRC screening and early detection via invasive or non-invasive methods, have been known to improve the morbidity and mortality of this disease. Since COVID-19 lead dramatic decline in cancer screening, CRC has been showed to be most affected, because diagnosis at advanced stages are associated with lower survival.^{4,5} Impact of COVID-19 pandemic on CRC screening has been investigated and restrictions that have been implemented in different countries were shown to

reduce screening.⁶ Colonoscopy is the most preferred method for CRC screening despite the invasiveness of the procedure, sedation or anesthesia requirement and unpleasant bowel preparation. As well as fear of developing COVID-19 infection additionally to the abovementioned limitations, people have canceled or delayed their colonoscopy appointments.

It is important to understand the impact of the pandemic on the patients' mood that colonoscopy recommended and whether the pandemic altered patient compliance to the screening. In order to recognize emotional disorder, we provided simple questionnaire to the patients prior to procedure. Hospital Anxiety and Depression Scale (HADS) is a psychometric test that was created especially for assessing the possible cases of anxiety and depression in the clinical settings.⁷ In our study we performed HADS to the patients who were planned to undergo colonoscopy and compared the scores in two similar time periods in 2019 and 2021 in order to assess the effect of COVID-19 pandemic on the CRC screening.

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METHODS

This study was approved by the the Ankara Bilkent City Hospital Clinical Researches Ethics Committee (Date: 17.02.2021, Decision No: E1-21-1547). Informed consent of the participants were obtained. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

In this cross sectional study data of patients who were planned to undergo CRC screening via screening colonoscopy during COVID-19 period (March 1 to March 28, 2021) were compared to same month in 2019 in General Surgery endoscopy unit of University of Health Sciences Ankara Bilkent City Hospital. Groups were compared in terms of age, gender, education level, incidence of unwillingness and cancelling the colonoscopy for CRC screening and HADS scores.

The screening colonoscopy interval were recommended according to the national guidelines. HADS were performed to the patients who were planned to undergo screening colonoscopy in pre-COVID-19 and COVID-19 period group. HADS is composed of two subscales and each consists 7- item for depression (HADS-D) and anxiety (HADS-A). Each item is scored on a four-point (0-3) format and scores range from 3 most severe to 0 for absence. So, the scores range from 0 to 21 for each anxiety and depression. Score 0 to 7 for either subscale is being in the normal range, 8 to 10 being suggestive of the presence of the respective state, score of 11 or higher reflects caseness of the mood disorder.⁸ The scores of HADS-A and HADS-D according to gender and education level of the patients were evaluated.

Statistical Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), version 23.0 for Windows (SPSS Inc., Chicago, IL, USA). Descriptive statistics were given as mean (standard deviation) for normally distributed variables or median (minimum-maximum) for variables that for not normally distributed. Categorical data were expressed as percentages. The normal distribution of the data was assessed by the Kolmogorov-Smirnov test. The Chi-square test or Fisher's exact tests were performed to compare categorical variables as appropriate. The Mann-Whitney U test was conducted for nonnormally distributed continuous variables. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 100 patients were included in this study, 43 of them were in pre-COVID-19 group, 57 were in COVID-19 period group. The mean ($\pm$ SD) age of the whole cohort was 51.1 ($\pm$ 12.45) years. The characteristics of the two groups are presented in [Table](#). No significant difference was found in age, gender and education level of the groups ($p=0.314$, $p=0.686$ and $p=0.306$; respectively). Sixteen (28%) of the patients were unwilling to undergo screening and 3 (5.2%) of them cancelled the colonoscopy in COVID-19 period group, however none of the patients had an anxiety to undergo screening and cancelled colonoscopy in pre-COVID-19 group. The median (minimum-maximum) HADS-A and HADS-D scores were 8 (0-20) and 6 (0-18) in pre-COVID-19 group and 20 (12-25) and 16 (13-24) in COVID-19 group ($p<0.001$ and $p<0.001$; respectively). No significant difference was found in HADS-A and HADS-D scores according to gender ($p=0.77$ and $p=0.65$;

respectively) and no significant difference was found in HADS-A and HADS-D scores according to education level of the patients ($p=0.28$ and $p=0.27$; respectively).

Table. Comparison of the characteristics of the pre-COVID-19 group and COVID-19 group

Characteristics	Pre-COVID-19 group (n=43)	COVID-19 group (n=57)	p-value
Age (years)*	56 (21-82)	50 (21-85)	0.314
Gender, n (%)			
Female	20 (46.5)	30 (52.6)	0.68
Male	23 (53.5)	27 (47.4)	
Educational status, n (%)			
Primary school	22 (52.3)	36 (63.1)	0.30
High school and graduate	21 (47.7)	21 (36.9)	
*Median (minimum-maximum)			

DISCUSSION

To the best of our knowledge, no previous studies have investigated the impact of the COVID-19 pandemic on the mood of patients who were recommended colonoscopy for CRC screening in Turkish society. We found that the subscales of HADS scores were significantly higher in COVID-19 period group. However no significant difference was found in HADS-A and HADS-D scores according to gender and education level of the patients.

Colorectal cancers are the second and third leading causes of cancer-related death in men and women, respectively, to deal with CRC, colonoscopy is considered as an effective diagnostic method, which gives option to remove adenomatous polyps and can improve CRC outcomes with early detection of presymptomatic malignancies. Also, fecal immunochemical test (FIT) has become popular because it has high sensitivity to identify patients with the highest risk of CRC. However increased time lag between a patient's positive FIT result and colonoscopic examination results in the more advanced lesions. Lee et al.⁹ showed that patients who had a positive FIT result but failed to undergo timely colonoscopic examination, had the increased risk of any CRC or advanced-stage CRC with the increased time lag. They compared patients who underwent colonoscopy within 1-3 months and patients who underwent colonoscopy more than 6 months and found that delayed group had a significantly increased risk of any CRC and advanced-stage disease. Meester et al.¹⁰ compared patients who underwent colonoscopy within 2 weeks of positive FIT results and patients who underwent colonoscopy 12 months later and found that any CRC and CRC related death was increased about 4% and 16%, respectively. So it should be kept in mind the importance of timely colonoscopy after a positive FIT result.

COVID-19 has caused the cancellation of elective surgeries and suspended CRC screenings like the other screening programmes.¹¹ The effects of the disruption of this primary health care procedures have impaired the timely manner cancer diagnosis and results late diagnosed cancer cases with increased morbidity and mortality.¹² A study from Italy showed that diagnosis of CRC was decreased (62%) after the COVID-19 pandemic has initiated and compared to other cancers CRC had the most third delay in diagnosis following prostate and bladder cancer.¹³ Wassie et al.¹⁴ showed

that during April-June 2020, the number of performed colonoscopies decreased by 51.1% compared to the same months in 2019. In another study Lantinga et al.¹⁵ observed a significant reduction in endoscopic procedures during March to May 2020, especially gastroscopies (57%) and colonoscopies (45%). They concluded that during that time period infection was more prevalent in Netherlands and resulted in postponed or cancelled elective endoscopic procedures. Previous studies have shown that patients' unwillingness to attend hospitals because of the fear of infection and exposure the virus, has decreased hospital admissions.¹⁶⁻¹⁸ Unfortunately delays in screening and surveillance colonoscopies might facilitate the progression of cancer in people who are prone to CRC. In a study from our country Guven et al.¹⁹ compared the stages of the newly referred patients to medical oncology clinic during the first 10 months with the year before. They showed that the incidence of inoperable or metastatic diseases were significantly increased but percentage of patients diagnosed via the screening methods were significantly decreased during the pandemic. And they observed that the metastatic disease at first visit were more prominent in breast and colorectal cancer.

Korean national data reported a 43.8% reduction in the number of diagnostic colonoscopies and a 37.5% reduction in that of therapeutic colonoscopies. Western countries also showed that a reduction in colonoscopy volume during the COVID-19 pandemic was over 90% in the New York metropolitan area, up to 85.6% using the French national health data, 92% based on 4 population-based datasets of England, and 59% in the population-based study from Hong Kong compared to those prior to COVID-19.²⁰ A study conducted in Türkiye found that the number of colorectal screenings in 2020 decreased by 46.1%, 81.9%, and 72.2%, respectively, compared to the three previous years (2017, 2018, and 2019).²¹

Similarly we have observed the negative effects of COVID-19 on the compliance of CRC screening in our colonoscopy unit. In order to evaluate the patients' mood who were planned to undergo screening colonoscopy, we performed the subscales of Hospital Anxiety and Depression Scale; HADS-A and HADS-D scores. We found that HADS-A and HADS-D scores were significantly higher in COVID-19 period group than pre COVID-19 group ($p<0.001$ and $p<0.001$; respectively). In the COVID-19 period 16 (28%) of the patients were unwilling to undergo screening and three (5.2%) of them cancelled the colonoscopy. We think that the most important reason for this situation is the COVID-19 infection, because in the pre-COVID-19 group none of the patients had an anxiety to undergo screening and cancelled colonoscopy. As it is well known invasiveness of the colonoscopy, requirement of sedation or anesthesia and dietary preparation for bowel cleansing contribute to low compliance with colonoscopy screening. Also, COVID-19 pandemic have detrimental effects and shown to be an important contributory factor to the distress of undergoing colonoscopy. HADS have been most commonly performed in oncology as well as in other somatic illnesses in many studies.²² Annunziata et al.²³ conducted a study in order to evaluate HADS accuracy in cancer patients, comparing its two subscales (HADS-A and HADS-D) against tools not in use in psychiatry, which are able to detect prolonged negative emotional states. They concluded that HADS scores could help clinicians in order to recognise anxious and depressive states in cancer patients in clinical settings.

CONCLUSION

As a result, CRC prevention efforts depend largely on screening. Therefore, the effectiveness of the screening method depends both on the test sensitivity, specificity and the patients' compliance. It is very difficult to compare all screening methods against each other but theoretically ideal screening test could detect most incipient CRCs, or CRC at an early stage. Especially in the global health burden conditions like COVID-19, less invasive, easily applicable even could be performed at home screening tests could be preferred option. Future studies are required in order to identify innovative, non-invasive alternative screening methods like novel biomarkers in CRC.

ETHICAL DECLARATIONS

Ethics Committee Approval

This study was approved by the Ankara Bilkent City Hospital Clinical Researches Ethics Committee (Date: 17.02.2021, Decision No: E1-21-1547).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights-including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

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Author Contributions

All authors contributed significantly to the study's conception, design, data acquisition, analysis, and interpretation. All authors reviewed and approved the final version of the manuscript.

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