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EVALUATION THE QUALITY AND PRACTICE OF ENDOSCOPY IN COVID 19 PANDEMIC AND ITS EFFECTS DUE TO USE OF FACE SHIELD

[1]*Rauf Jan and [2]Dr. Sher Alam

[1]Senior Registrar, Shaikh Zayed University Teaching Hospital Khost Afghanistan.
[2]Assistant Professor, MD Gasteroenterology PIMS.

***Corresponding Author: Dr. Rauf Jan**
Senior Registrar, Shaikh Zayed University Teaching Hospital Khost Afghanistan.

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ABSTRACT

Objective: The objective of this study is to identify evaluation the quality and practice of endoscopy in covid 19 pandemic and its effects due to use of face shield. **Materials and Methods:** This research was carried out at Gastroenterology Department, PIMS Islamabad. study design was randomized control trial and duration of the study was ten months in which a total of 106 patients absolute precision with expected percentage of endoscopy as 62.5% and BES injection as 37.5%. **Results:** Among 106 subjects the 72 (67.9%) were Male and 34 (32.0%) were Female. Duration of the study was ten months in which a total of 106 patients absolute precision with expected percentage of endoscopy as 62.5% and BES injection as 37.5%. In total, 106 study patients had undergone screening or surveillance colonoscopy (face shield group, n = 53; non-face shield group, n = 53). No statistically significant between-group differences were observed (PDR, 50.03 vs. 54.61%, $p = 0.301$. No statistically significant differences were found in the CRR (74.33 vs 90.17%, $p = 1.045$) and procedure times (21.32 ± 8.12 vs. 20.14 ± 13.51, $p = 0.765$). **Conlcusion:** Wearing face masks during COVID-19 violence did not affect the quality indicators of GI endoscopy.

KEYWORDS:

INTRODUCTION

To determine the difference, scientists make a genetic map of viruses (known as sequences) and then look at the differences between them to see if they have changed. Coronavirus 2019 (COVID-19) is caused by acute Acute Respiratory Syndrome coronavirus-2 (SARS-CoV-2). In a few months, it has led to an epidemic of unprecedented levels affecting more[1] than 16 million countries and 650,000 deaths as of July 26, 2020. The epidemic has put pressure on medical systems and hospitals around the world. Initially, it is believed that respiratory expression regulates the presentation of COVID-19. As epidemic knowledge develops, external manifestations of the lungs are becoming increasingly noticeable (2-6). The Centers for Disease Control and Prevention (CDC) added many symptoms as part of the introduction of COVID-19, which includes gastrointestinal (GI) symptoms such as nausea, vomiting, dysgeusia, pancreatitis, hepatitis, constipation, etc. protective equipment (PPE)[2], lack of diagnostic resources, declining patient numbers, staffing, and closure have forced these units to be innovative and to prioritize high-risk procedures and to postpone or cancel endoscopies in medium to minor cases. (11).

The World Health Organization named the SARS-CoV-2 virus as coronavirus 2019 (COVID-19) in February 2020 and declared it an epidemic in March 2020.[3] Because COVID-19 is highly distributed by droplets, aerosols, and direct contact, health workers are at greater risk of exposure to COVID-19 than most people. Fecal-to-oral transmission may also be a route of infection with COVID-19.[4] Therefore, endoscopic procedures, such as colonoscopy, increase the risk of COVID-19 transmission. Medical communities, such as the World Endoscopy Organization, the American Society for Gastrointestinal Endoscopy, the American Page 3/15 Gastroenterological Association, the European Society of Gastrointestinal Endoscopy, and the Asian Pacific Society for Digestive Endoscopy, have made recommendations for doctors to follow during COVID19. Common recommendations for this were to evaluate the risk of COVID-19 to determine when endoscopy was performed and to ensure that all endoscopists should wear appropriate protective equipment (PPE) to prevent transmission of COVID-19.[5] PPE it also includes the garment of isolation., discarded gloves, mask, and face mask or glasses. A face mask is used to protect the face area from exposure to infectious agents. Screen sharpening is an important factor influencing ADR during colonoscopy. Since the

face shield is a device worn over the eyes, it may affect the viewing area of the user looking at the screen.[6,7] However, there are no reports of the effect of the use of face protection on the quality of colonoscopy including ADR. Therefore, it is necessary to determine whether the use of a face shield affects ADR or other quality indicators of colonoscopy.[8,9] Therefore in this study we will discuss that although coronavirus 2019 (COVID-19) has become a global epidemic, health workers are at high risk of exposure. During the epidemic, endoscopists should wear protective clothing (PPE), including face shields, to prevent the spread of COVID-19;[10] however, several studies have reported the effect of facial protection on the quality of intestinal endoscopy (GI). We aimed to determine whether the use of PPE, including face shields, affected the quality of GI endoscopy during the COVID-19 epidemic.

MATERIAL AND METHODS

We reviewed the medical records of patients who had been screened or monitored for colonoscopy and abdominal ESD at Gastroenterology department PIMS hospital Islamabad between April 2021 and January 2022 during the COVID-19 epidemic. All patients who underwent colonoscopy were 35-65 years old and had their first colonic examination or colonized colonoscopy after three years of their last examination. Gastric ESD was performed by two experienced doctors. Endoscopists wore isolation clothing, disposable gloves, and KF94 masks from April 2021 to October 2021; patients screened under this condition were divided into a non-facial shield. From November 2021 onwards, endoscopy doctors also wore face masks, and patients examined under this condition were classified into a face shield. We compared the quality indicators of GI endoscopy within five months without the use of face masks and five months with the use of face masks.

The polyp detection rate (PDR) was defined as the number of patients with at least one polyp, including adenoma and hyperplastic polyps (HPs), among all patients examined. Te ADR was defined as the number of patients with at least one adenoma in all patients examined. We have added the essential features of sessile serrated (SSL) lesions to our SSL definition. Therefore, SSL was defined as: (a) SSL with or without dysplasia, (b) HP measuring ≥ 5 mm in adjacent colon (near splenic fexure), or (c) HP ≥ 10 mm total colony. The advanced adenoma is defined as follows: any adenoma ≥ 10 mm in size, with villous histology or with high-grade dysplasia, and any SSL ≥ 10 mm in size or with dysplasia. The Te SSL (SSLDR) detection rate and the advanced neoplasia detection rate (ANDR) were calculated in the same way as PDR and ADR.

Te CRR was calculated to assess whether the horizontal level of the gastric neoplasm was adequately monitored when performing ESD as a quality indicator that could significantly affect visual acuity in high GI endoscopy. Before performing ESD, horizontal genes were tested using two methods, namely, white light image and NBI. Pathological analysis of the extruded specimen was defined as a complete reversal involving the horizontal edges of the neoplasm.

The main conclusions were the comparison of ADR and CRR between groups. The second endpoints were PDR, SSLDR, ANDR, adenoma number by colonoscopy (APC), time for intubation, and withdrawal period for low GI endoscopy. Comparison of the duration of the ESD process of the abdomen was also a second conclusion. Te data is divided into two groups: data from the procedures for wearing face masks and data for procedures performed without face masks. Continuous data were analyzed using the Student t-test and are represented as hiwo mean che deviations. Phase data were analyzed using Pearson's chi-squared or Fisher's direct analysis.

RESULTS

Table 2: Gender distribution.

Gender	Frequency	Percent
MALE	72	67.9
FEMALE	34	32.0
Total	106	100.0

Among 106 subjects the 72 (67.9%) were Male and 34 (32.0%) were Female as shown in Table 2.
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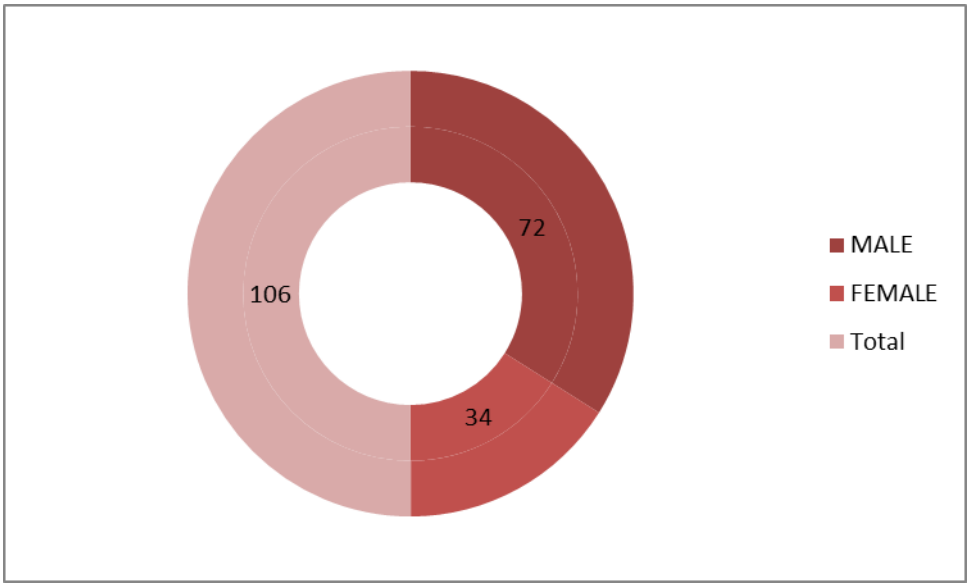

Baseline Characteristics

PARAMETERS	FACE SHIELD	NON FACE SHIELD	P_ VALUE
Reason of examination			
➢ SURVELLIANCE	13	11	<0.032
➢ SCREENING	40	42	
Examination of the day			
➢ Morning	24	22	<0.045
➢ After noon	29	31	
Anti coagulation use			
➢ YES	12	11	<0.032
➢ NO	41	42	
Sedation			
➢ YES	44	38	<0.045
➢ NO	9	15	
Bowl preparation			
➢ BBPS 8,9	39	21	<0.035
➢ BBPS 6,7	14	32	
Type of colonoscopic			
➢ CV-290	21	18	<0.076
➢ EPK-i7010	32	34	

No statistically difference in above mentioned parameters in given.

PARAMETERS	FACE SHIELD	NON FACE SHIELD	P_ VALUE
APC	0.92±1.25	0.72±1.32	<0.013
SSLDR (%)	2.72 (11/53)	2.16 (9/53)	<0.019
Cecal intubation time (second)	422.31±184.07	412.±123.06	<0.231
Withdrawal time (second)	523.71±172.52	518.51±126.72	<0.220
PDR (%)	49.04 (26.1/53)	47.04 (24.1/53)	<0.031
ADR (%)	36.48 (20/53)	35.41 (21/53)	<0.051

No statistically difference in above mentioned parameters in given.

ENDOSCOPY FEATURES AND SIZE OF ADENOMAS

CHARACTERISTICS	FACE SHIELD	NON FACE SHIELD	P_ VALUE
FLAT	0.03 (21/53)	0.04 (32/53)	<0.019
POLYPOID	0.02 (19/53)	0.01 (34/53)	<0.015
Final pathology			
➢ HGD	24	25	<0.014
➢ EGC, diferentiated	13	12	
➢ EGC,	16	16	

undiferentiated			
Invasion depth ➢ **HGD and T1a** ➢ **T1b and deeper**	**45** **8**	**46** **7**	**<0.122**
H.pylori status ➢ **Positive** ➢ **Negative**	**12** **41**	**13** **40**	**<0.024**
Macroscopic type ➢ **Elevated** ➢ **Flat** ➢ **Depressed** ➢ **Mixed**	**21** **12** **13** **7**	**23** **12** **10** **8**	**<0.341**
Location ➢ **Antrum** ➢ **Body and fundus**	**22** **32**	**19** **34**	**<0.098**

No statistically difference in above mentioned parameters in given.

DISCUSSION

In addition, the knowledge of both endoscopist and trained physicians was not affected by the use of facial masks. As the number of endoscopic procedures performed increases, the occupational health risks of endoscopists are increasing, one of which is exposure to infection.[11] Throughout the COVID-19 epidemic, endoscopic physicians were increasingly at risk of receiving COVID-19 through airborne droplets and mixed contact. Because human-to-human transmission occurs primarily through direct contact or air droplets, high GI endoscopy can be a procedure that increases the risk of COVID-19 infection due to coughing in patients during testing.[12] Live SARSCoV-2 virus has also been found in patient pathways, and COVID-19 transmission by fecal-oral is also possible. Therefore, colonoscopy may be a procedure that incorporates an increased risk of infection with COVID-19. In addition, patients with COVID-19 may develop abnormal GI symptoms;[13] Therefore, endoscopy can be performed on an undiagnosed patient, who has COVID-19 infection, thus increasing the risk of COVID-19 transmission [25]. One study that measured the level of unknown exposure to potentially harmful biologic samples during endoscopy using a face endoscopist reported that facial exposure may lead to the transmission of infectious diseases.[14] According to a previous study conducted in the first phase of the COVID-19 epidemic, 19% of health care workers who wore masks and gloves and who washed their hands without extra face protection became infected with COVID-19, but those who used extra protection were not infected.[15,16] For these reasons, it is important for endoscopic specialists to wear face masks and isolation clothing, gloves, and masks in all endoscopic procedures during this period of COVID-19 violence. However, wearing a face mask may affect the ability to see endoscopists during procedures. Previous studies have reported that ADR was influenced by the resolution and visual feld of colonoscopy.[16] Viewing adenomas is not easy when the screen is clear and the visual field is wide. However, concerns may be raised about whether wearing a face mask affects clarity or visibility during colonoscopy and thus reduces ADR. Therefore, we aimed to determine whether wearing a face mask affected the performance of endoscopists and whether the procedure time had increased or the withdrawal period had decreased. During our study period, Lee et al. reported that the performance of the colonoscopy was not significantly affected when wearing a face mask.[17] We also found that wearing a face mask did not affect the quality indications of colonoscopy, including ADR. However, our study differs from that of Lee et al. by analyzing quality indicators related to both lower and upper GI endoscopy. Endoscopic retrograde cholangiography was not included in our analysis because wearing glasses was recommended prior to the COVID-19 epidemic due to exposure to eye radiation.[18] Therefore, there may be concerns about whether the wearing of a facial shield affects clarity or visual feld during ESD of the abdomen and thus reduces the accuracy of the tumor separation and reduces CRR. In this study, we found that wearing a face mask did not reduce the accuracy of the tumor separation or delay the procedure. Thesis research has some limitations. When face protection is worn, light may be placed on the face shield and disturb the viewing area of the endoscopist. In our hospital's endoscopy room, lights were turned on, only the video processor screen was turned on, and there was no direct sunlight. However, although the light or brightness of the endoscopy room and the position of the screen may affect the light on the face protection, these effects may differ between the endoscopy rooms.[19] In this study, the effects of these differences on GI quality indicators were not analyzed. Moreover, in this study, the effect of only one type of facial mask was investigated. As different types of face masks are available, their effects on GI endoscopy quality indicators may vary. This was a retrospective study of medical records;[20] therefore, it had natural limitations. In our hospital, endoscopy is required to be performed in strict compliance with the guidelines; however, as this was a retrospective study, we could not confirm whether these recommendations were followed or not in some of the patients.

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