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Restarting endoscopy services in Pakistan, in the covid era: The way forward

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ABSTRACT

Background: The emergence of SARS-COVID2 has completely reshaped the way we go about our daily business. Apart from other services, this has also impacted healthcare services and the way they are delivered. As endoscopy is an Aerosol generating procedure (AGP) with high risk of transmission, multiple endoscopy societies at the peak of the pandemic published guidelines on prioritizing of endoscopy services according to the urgency, highlighting the clinical indications which could be deferred until a more comprehensive plan is put out to safely perform endoscopy procedures or the infection rates drop down. **Aims and Objectives:** We give an example of how our unit in a low Human development Index country, worked through the peak of pandemic providing service to patients in a safe manner which can be continued forward until the pandemic runs its course. **Materials and Methods:** This prospective study was performed at Dr. Ziauddin University Hospital, Karachi. The ethical endorsement was taken from the Ethical Review Committee. Informed consent was secured in writing from each participant. Patients were assessed by a given screening questionnaire and COVID RT PCR of every patient was checked before endoscopy procedures, only those who tested negative were included in the study. The endoscopy consultant, endoscopy trainee, anesthetist and the endoscopy staff along with the patients were reassessed for signs and symptoms of COVID-19 via a telephonic questionnaire, two weeks after the procedure. **Results:** Total 80 patients were assessed, out of which 60 were males. All the patients had negative COVID-19 PCR at the time of endoscopy. The procedures were performed under propofol sedation with full Personal protective equipment (PPE) both for the endoscopist and the staff in the room. The PPE included N95 masks, hairnet, Face visor, surgical gloves and disposable gowns. 2 weeks post procedure both the patients and the endoscopy staff were assessed via telephonic questionnaire for any signs & symptoms of COVID-19 or any positive COVID PCR since the time of endoscopy.**Conclusion:** SARS-COVID 19 pandemic is far from over. There is a dire need to restart endoscopy services in a safe and effective way. Ideally full PPE and negative pressure rooms for AGP is the way forward considering that quite a few patients are asymptomatic carriers and the dismissal rate of COVID PCR pick up rate. In low socioeconomic countries these facilities are not readily available. Hence doing a COVID PCR prior to the procedure with adequate PPE can be used as a way forward in COVID era until the pandemic is over.

Key words: Endoscopy; COVID-19; Aerosol generating procedure; Questionnaire; Way forward

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INTRODUCTION

The COVID-19 outbreak has increased the global burden on the health system worldwide.[1] Pakistan like many countries is severely affected with an exponential rise in the cases and deaths associated with it.[2-4] This has rightly led to restrictions being imposed on diagnostic services especially the aerosol generating

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procedures (AGP). As GI endoscopy is considered a risk for viral transmission, hence endoscopy services have been curtailed.[5] The broad-spectrum nature of the disease, from asymptomatic mild disease to severe critical respiratory illness leading to respiratory failure, multiorgan failure and death compounds the problem.[6,7] Furthermore 50% of infected patients report GI symptoms.[8]

The virus causing COVD-19 i.e the SARS-CoV-2 has been shown to be transmitted indirectly through contaminated surfaces and airborne droplets.[9,10] There are now early reports of patient being unwilling to attend hospitals for procedures during the pandemic,[11] therefore proper risk stratification which includes pre procedure testing should be compulsory under these unprecedented times. The American society for gastrointestinal endoscopy (ASGE) provided guidelines for endoscopy procedures that could be delayed and those urgent procedures that can be performed with proper equipment and in a safe environment. Further guidelines were also provided by the British society of Gastroenterology(BSG) on safe restarting the endoscopy services involving 5 principles.[12] The European Society of Gastrointestinal Endoscopy (ESGE) and the European Society of Gastroenterology and Endoscopy Nurses and Associates (ESGENA) have also provided guidance to assure the highest level of protection against COVID-19 for both patients and health care personnel. The ESGE-ESGENA Position Statement provided guidance on 4 main topics:

1. How to perform gastrointestinal (GI) endoscopies during the COVID-19 viral pandemic?
2. Which GI endoscopy procedures should always be done? Which should be postponed?
3. How to protect GI endoscopy unit personnel during the pandemic?
4. What knowledge is currently missing and what is needed in this evolving field?

Globally delaying endoscopic procedures poses a risk for the health system & patients who need evaluation for cancer diagnosis. According to conservative estimates, delays to cancer diagnoses and treatment could be responsible for nearly 30000 additional deaths in USA and 7000 in England.[13] As of August 2020, 803000 deaths have been reported due to Covid so far.[14] There were 18 million cases of cancer reported worldwide in 2018 and 10 million cancer deaths with GI cancers accounting for 17%. Thus making it imperative to restart endoscopy services in a safe matter to try and mitigate the effects of pandemic on all-cause mortality.

MATERIALS AND METHODS

This prospective study was performed at Dr. Ziauddin Hospital, Karachi. The ethical endorsement was taken from the Ethical Review Committee of the hospital before starting the study. Informed consent was secured in writing from each participant as well. All patients aged 20 years or more were included. Patients were initially assessed by a screening questionnaire and COVID RT PCR of every patient was checked before endoscopy procedures. Only those patients with negative COVID PCR, 48-72 hours prior to the procedure were included in the study. Two weeks after the endoscopic procedure, sign and symptoms of both the patients and the endoscopy staff including endoscopist, trainee and other endoscopy staff were assessed with the same questionnaire. All the procedures were performed under propofol sedation.

RESULTS

A total of eighty patients were included in this study, with a M:F ratio of 4:1. Baseline characteristics of study subjects are mentioned in Table 1. Indications for GI procedures as mentioned in Table 2. All patients were COVID PCR negative at the time of Endoscopic procedure. Forty-nine patients had diagnostic procedures performed with 25 having gastroscopy and 24 patients having colonoscopy. ERCP was performed in 12 patients. Emergency Gastroscopy (EGD) was done in 7 patients. Endoscopic Ultrasound (EUS) was performed in 10 patients PEG tube placement was performed in 2 patients. Two weeks post procedure none of the patient had developed any sign and symptoms of COVID-19. All the endoscopy staff including consultant, endoscopy nurses and gastroenterology trainee was also assessed for sign and symptoms of COVID-19,

Table 1: Baseline characteristics of study subjects (N=80)

Variable	Mean ± SD	Range
Age	45.93±12.052	18-78
Height (cms)	172.5±13.2	64-198
Weight (kg)	84.4±14.2	55-170
BMI(kg/m^2)	27.5±3.5	17.7-45.1
Waist (cm)	90.5±8.3	76-138
Hb(g/dl)	12.2±1.86	7.9-17.0
TLC(x10^9/liter).	6.2±2.5	0.9-14.0
Platelets (x10^9/liter).	198.7±84.18	20-458
Total Bilirubin(mg/dl)	1.87±3.01	0.1-23
ALT(IU/L)	61.3±64.5	19-501
AST(IU/L)	57.9±59.8	10.3-425.0
GGT(IU/L)	189.6±326.2	19.0-2500
ALP(IU/L)	130.4±132.5	45.0-989
PT	16.3±4.1	10.0-37.0
INR	1.3±0.4	0.8-3.5
CR(mg/dl)	0.96±0.21	0.20-2.6

Table 2: Indications for GI procedures (N=80)

Indications	Number of patients (N)	Percentage %
Diagnostic Gastroscopy (EGD)	25	31.2%
Anemia	5	20%
Epigastric pain	10	40%
Dyspepsia	4	16%
Chronic vomiting	4	16%
Chronic diarrhea	2	8%
Diagnostic Colonoscopy	24	30%
Anemia	7	29.1%
Abdominal pain	5	20.8%
Chronic diarrhea	10	41.6%
Per rectal bleeding	2	8.3%
Endoscopic Ultrasound (EUS)	10	12.5%
Pseudocyst	7	70%
Pancreatic Mass	2	20%
Distal CBD stricture	1	10%
PEG tube placement	2	2.5%
Aspiration Pneumonea	2	100%
ERCP	12	15%
Obstructive Jaundice	4	33%
Cholangitis sec to Choledocholithiasis	8	67%
Emergency Gastroscopy (EGD)	7	8.7%
Hemetemesis	5	71.4%
Melena	2	28.6%

and were found to be healthy with no symptoms of COVID-19. Indications of procedure, procedure related complication and Post Procedure COVID PCR of study subjects (80) as mentioned in Table 3.

DISCUSSION

In this COVID era whilst the services may not normalize completely until an effective vaccine is developed, different gastrointestinal associations have published guidance on endoscopy during COVID-19 and on the need to restart endoscopic services in a safe manner.[15] The patients are also unwilling and reluctant to attend hospitals, as they perceive that the risk of contracting COVID-19 is high especially with invasive procedures like Endoscopy. We propose a way forward for endoscopy departments especially for patients awaiting cancer diagnosis. With pre procedure screening and COVID-19 PCR testing, and performing the procedure with proper PPEs, the risk of developing COVID can be greatly be minimized. This obviously is not a fool proof system and that there is a 30% false negative result with the current testing method, however this provides reassurance and a way forward for safely restarting and continuing endoscopy services in the COVID era. Due to the possibility that infected individuals may be asymptomatic despite negative COVID PCR. Therefore, we suggest contacting all patients who had endoscopy, two weeks after the procedure. This can be done via telephonic questionnaire which will minimize physical contact and repeated hospital exposure.

Table 3: Indications of procedure, procedure related complication and post procedure COVID PCR of study subjects (80)

Indications	Procedure related complications	Post procedure COVID PCR
Diagnostic Gastroscopy (EGD)	None	Negative
Diagnostic Colonoscopy	None	Negative
Endoscopic Ultrasound (EUS)	None	Negative
PEG tube placement	None	Negative
ERCP	Pancreatitis	Negative
Emergency Gastroscopy (EGD)	None	Negative

Ideally Risk stratification of patients for possible COVID-19 infection should be done 1day prior to GI endoscopy (by phone preferably) and then again on the day of endoscopy [16] using a well-structured questionnaire. However as COVID-19 is believed to be at least 3 times as contagious as the flu virus, and recent reports estimate that as many as 44% of transmissions could occur involving asymptomatic patients, hence making testing for COVID PCR is absolute.[17]

It is crucial to restore endoscopy services using a strategic approach. Ideally this should require rapid testing of both patients and staff with rapid turnaround of results, appropriate selection of patients and their COVID 19 status prior to the procedure. If the protocols aren't followed in the right way, this will heavily impact and possibly dismantle the endoscopic services, creating a larger workload for the future. WHO guidelines not only recommend screening strategies as explained herein, but also the need to assess impact of delaying procedures. This is an essential part of preparedness and ensures our current practice is optimized and will facilitate the safe, effective and efficient services that our patients and stakeholders will expect and need.

CONCLUSION

SARS-COVID 19 pandemic is likely to persist for few years. There is a dire need to restart endoscopy services in a safe and effective way both for the patients and for the endoscopy staff. Ideally full precautions as per WHO recommendations should be taken. However, it is difficult in low socioeconomic countries due to cost and lack of facilities hence a proper system needs to be put in place so that both the patients and staff can work with confidence. We understand that this is not a fool proof system; however it provides some reassurance and a way forward for restarting endoscopy services in the COVID era until a permanent cure is found.

What is already known about this subject?

COVID-19 has had a major impacted the lives of everyone. The pandemic has led to scaling down of endoscopy services due to safety issues which has directly impacted on patient's management and care.

What are the new findings?

We describe a way forward whereby endoscopy services can continue in a safe and secure environment both for the patients and healthcare providers.

How might it impact on clinical practice in the foreseeable future?

With the COVID-19 pandemic set to continue for forceable future, this method could mitigate the impact of scaled down endoscopy services on healthcare system of the country, when the pandemic is over.

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