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Original Research Article

IMPACT OF COVID-19 ON ENDOSCOPIC DEMOGRAPHY: A CROSS SECTIONAL STUDY

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Abstract

Background: Pandemics are never easy to deal with, especially this new covid pandemic which has exposed the vulnerability and multiple lacunae in our existing health care. In this midst of chaos and uncertainty delivering endoscopic services had become a nightmare, as endoscopy is a procedure done in the aero digestive tract and also an aerosol generating procedure. This led to a lot of enigma and skepticism in selection of patients and precautions to be taken while performing procedures. **Objective:** To Know the Feasibility and Utility of endoscopy as diagnostic and therapeutic services in Covid pandemic in the midst of chaos and uncertainties. **Materials and Methods: It** is a retrospective study conducted from May 2020 to December 2020 in a Tertiary care Gastro hospital. Patients were screened clinically by Questionnaire highlighting the travel history, contact history, and residing history (hot spots for covid). X-Ray, HRCT and RT-PCR was done to exclude high risk cases. Clinical screening for symptoms, Vitals, Spo2 was done on all the patients. The procedures were performed using standard endoscopy equipment with appropriate COVID 19 protocols. **Results:** One thousand two hundred and eighty (1280) patients aged between 20 years to > 70 years were referred and undertake upper and lower GI endoscopy in a Tertiary Care gastro hospital. Majority of the cases who underwent endoscopy were in the age group 31-40 years 317 (24.8%). They comprised of 59.9% males and 40.1% females. Common endoscopic diagnoses were Gastric erosions 31.4% followed by Normal Upper gastrointestinal endoscopy (UGIE) / Lax Gastroesophageal (GE) Junction 17.4%. The most common symptom was dyspepsia seen in 725 (56.6%) of the patients, followed by dysphagia in 92 (7.2%), abdominal discomfort 64 (5%). **Conclusions:** This study highlights, with proper history and clinical screening and appropriate precautions it was possible to provide endoscopy service to the needy without a strict protocol and expensive pre-endoscopy work up like HRCT and RT-PCR for all patients, without compromising patient or staff safety. Patients with alarm symptoms like Dysphagia and GI Bleed benefited the most, many patients with functional GI Disorders also were reassured with negative endoscopy and counseling. As during these times, people were in panic mode with all negative things happening around; many of these functional patients with overlap anxiety disorders were scared to death. A positive diagnosis is very important while managing most of these GI disorders.

Key words: Endoscopy, Covid-19, HRCT, RT-PCR, Dysphagia, GI disorders

INTRODUCTION

SARS-CoV-2 had evolved as a pandemic that began in December 2019 in Wuhan, Hubei region in China. Since then, it rapidly spread to the nearby provinces and other neighboring countries. The mean

incubation period of the virus is five days (ranging from 0 to 14 days). The Asian Pacific Society for Digestive Endoscopy (APSDE) developed guidelines for the practice of endoscopy during the COVID-19 pandemic on the measures recommended to protect both patients and the endoscopy staff. APSDE recommended some strategies that emphasizes on the risk management protocols which should be developed according to the healthcare priorities. These statements should be considered as a framework of good clinical practice rather than a medico legal reference [1]. Older people, pregnant women, and immune compromised individuals are high-risk groups. Gastrointestinal symptoms are not uncommon, and 5% of patients had nausea and vomiting, and around 3.8%-10.1% had diarrhoea. [3] Some regions have shown their ability in maintaining a high-quality endoscopy service without subjecting patients and staff to severe health hazards. Endoscopy is a unique tool to evaluate gastrointestinal mucosa. It is best to evaluate different mucosal diseases like ulcers, cancers etc than contrast studies such as barium. In addition, experience from the widespread of SARS demonstrated the presence of corona virus in stool samples and intestinal biopsy samples. [4] Noninvasive imaging methods like ultrasound, Computed Tomography and X-ray have their own limitations for the accurate diagnosis of these gastrointestinal mucosal diseases (GIMD), where in endoscopy is the only test of choice, Since the endoscopy is an aerosol-generating procedure which has to be performed in the patients with GMID by following strict precautions during this global emergency. Covid-19 has affected numerous fields, sub-specialties and outpatient procedure-related Sectors, including gastroenterology. Endoscopy centers are exclusive units where thousands of endoscopies are performed yearly. These procedures are affected in a significant magnitude due to the national and regional lockdowns across the world.

The patient's elective procedures were postponed for 6 to 8 weeks during the pandemic peak. Only emergent and urgent indications were taken up for Endoscopy like pain abdomen, GI bleeding, significant weight loss, cancer diagnosis and palliation were the common indications during this pandemic era. Following precautions like plastic barrier were used between the patient and the endoscopist. All procedures were done in negative pressure ventilated rooms. All the health care personnel used PPE'S which are disposed appropriately. Patients were screened clinically by questionnaire highlighting the travel history, contact history and residing history (hot spots for Covid). X- ray, HRCT chest and RT PCR were done to exclude high risk cases. Clinical screening of Vital data along with Spo2 was done in everybody. All patient contact numbers were taken and followed up to 2 weeks after the procedure to check, if they developed any symptoms.

In the present study we evaluated the effect of the Covid-19 on GI endoscopy activity in a Tertiary care hospital, Visakhapatnam and to determine the risk of contamination of endoscopists at the peak of the epidemic.

Materials and Methods

It is a retrospective study conducted from May 2020 to Dec 2020 in a Tertiary care gastro hospital. The patient's elective procedures were postponed for 6 to 8 weeks during the pandemic peak. Only emergent and urgent indications were taken up for Endoscopy like pain abdomen, GI bleed, significant weight loss, cancer diagnosis, and palliation were the common indications during the Covid era. Patients were screened clinically by questionnaire highlighting the travel history, contact history, and residing history (hot spots for a Covid) X-ray, HRCT chest, and RT-PCR were done to exclude only in high-risk cases. Clinical screening like vital data along with Spo2 was done on everybody. All patient contact numbers were taken and followed

up to 2 weeks after the procedure to check if they developed any symptoms.

The details from the records of patients who underwent GI endoscopy during Pandemic Covid-19 era like age, gender, presenting complaints, endoscopic diagnosis is extracted and entered into a specialised data form before being entered into a computer by a research assistant. The procedures were performed using either video upper GI scope, and Flexible fibre-optic Colonoscope. SAS and SPSS software version 20.0 were used for data handling and analysis. Means and proportions were calculated to describe the subjects.

Results

One thousand two hundred and eighty (1280) patients aged between 20 years to > 70 years were referred and underwent upper and lower GI endoscopy in a Tertiary Care gastro hospital. Majority of the cases who underwent endoscopy were in the age group 31-40 years 317 (24.8%). They comprised of 59.9% males and 40.1% females. Age and sex distribution of cases were shown in Table 1 and Table 2. Common endoscopy diagnoses were Gastric erosions 31.4% followed by Normal Upper gastrointestinal endoscopy (UGIE) / Lax Gastroesophageal (GE) Junction 17.4% (Table 3). The most common symptom was dyspepsia seen in 725 (56.6%) of the patients, followed by dysphagia in 92 (7.2%), abdominal discomfort 64 (5%) (Table 4).

Table 1: Age-wise distribution of cases who underwent upper and lower GI Endoscopy

	Frequency	Percent
<= 20	61	4.8
21 - 30	255	19.9
31 - 40	317	24.8
41 - 50	287	22.4
51 - 60	201	15.7
61 - 70	119	9.3
> 70	40	3.1
Total	1280	100.0

Table 2: Sex-wise distribution of cases who underwent upper and lower GI Endoscopy

Sex	Frequency	Percent
Female	513	40.1
Male	767	59.9
Total	1280	100.0

Table 3: Endoscopy diagnosis

Diagnosis	Frequency	Percentage	Diagnosis	Frequency	Percentage
Gastric Erosions	402	31.4	Infectious	3	0.2
Normal UGIE / Lax GE Junction	223	17.4	Ileal ulcers	2	0.2
Gastroesophageal reflux disease (GERD)	178	13.9	Chronic pancreatitis	2	0.2
Hiatus Hernia	178	13.9	Lax anal sphincter	2	0.2
Malignancy	107	8.4	Gastric outlet obstruction (GOO)	2	0.2
Ulcer Disease	82	6.4	Colonic ulcers	2	0.2
Anal Fissure	59	4.6	Post RT status	2	0.2
Internal Hemmroids	58	4.5	Anastamotic erosions	1	0.1
Esophageal or Gastric varices/ Pulmonary hypertension	43	3.4	Clostomy closure	1	0.1

(PHTN)					
Colitis – IBD (Irritable bowel disease)	34	2.7	Rectal varices	1	0.1
Esophagitis/ Candidiasis	21	1.6	Peg placement	1	0.1
Stricture Dilation	17	1.3	Rectal ulcer	1	0.1
Jaundice, cholangitis	15	1.2	Fecaloma	1	0.1
Post cricoid Web	13	1.0	Fecal impaction	1	0.1
Gastric polyp	13	1.0	Stent removal	1	0.1
Corrosive Injury	9	0.7	Stercoral erosions	1	0.1
Colonic polyp	8	0.6	Pharyngeal pouch	1	0.1
Achalsia cardia	7	0.5	Sigmoid Volvulus	1	0.1
Rectal Growth	6	0.5	Post pseudocyst endoscopy drainage	1	0.1
Radiation colitis	5	0.4	Anal stenosis	1	0.1
Foreign Body	5	0.4	Stent /Device Removal	1	0.1
Rectal anastamotic narrow	5	0.4	colonic stricture	1	0.1
External compression	4	0.3	Peri anal absess	1	0.1
Anal fistula	1	0.1	Others	4	0.4

Table 4: Symptomatic analysis of the patients who underwent Endosopic procedures

Symptom	Frequency	Percentage	Symptom	Frequency	Percentage
Dyspepsia	725	56.6	IBD	1	0.1
Dysphagia	92	7.2	Chronic diarrhea	1	0.1
Abdominal discomfort.	64	5.0	Corrosive ingestion	1	0.1
Abdominal pain	47	3.7	Sigmoid Volvulus	1	0.1
Diarrhea	27	2.1			
Cirrhosis	16	1.3	Diarrhea, Incontinence	1	0.1
Constipation	12	0.9	GI Bleed	1	0.1
GI Bleed	10	0.8	dyspepsia, water brash	1	0.1
Primary	9	0.7	Dyspepsia/dysphagia/ globus	1	0.1
Anemia	8	0.6	GOO	1	0.1
Corrosive injury	7	0.5	Oesophageal carcinoma	1	0.1
Extrahepatic	7	0.5	Hepatocellular	1	0.1

biliary tract obstruction (EHBO)			carcinoma (HCC)		
Chest pain	7	0.5	CA Stomach	1	0.1
Melena	6	0.5	Anal mass	1	0.1
ERCP	4	0.3	FOR colostomy closure	1	0.1
PHTN	3	0.2	for D/L/D/P	1	0.1
Foreign body Ingestion	3	0.2	Adrenoleukodystrophy (ALD)	1	0.1
Cimbosis	3	0.2	Globus	1	0.1
Altered bowel habits	3	0.2	GOO, post antro duodenal SEMS	1	0.1
Annorexia	3	0.2	Colitis	1	0.1
Corrosive stricture	2	0.2	GOO, SMA syndrome	1	0.1
Jaundice	2	0.2	Hemetemisis	1	0.1
FB seen	2	0.2	Anal discomfort	1	0.1
Anal pain	2	0.2	Anal discharge	1	0.1
Hoarshness of voice	2	0.2	Low voice	1	0.1
FB Removal	2	0.2	Mass PR	1	0.1
Belching	2	0.2	Nausea/vomiting	1	0.1
Chronic liver disease (CLD)	2	0.2	Melena	1	0.1

Discussion

Endoscopy is a very common procedure to evaluate gastrointestinal diseases; it not only helps in diagnosis but has therapeutic valve in certain conditions. However, by nature of the procedure it passes through the aero digestive tract and is a aerosol generating procedure, leading to skepticism and speculation in indications, performance and precautions. The number of endoscopic interventions dropped dramatically during the Covid-19 outbreak. Patients' and physicians' perceptions of the risk of COVID-19 exposure led to limited number of procedures all over the globe. In a contrasting scenario during the 2019 research period, the proportion of inappropriate fast-track surgeries recorded was about 40%, with the rate for UGIE treatments being higher at 54 percent. This situation might have led to an overburdening of endoscopy facilities with unnecessary operations, delaying diagnosis for high-risk patients. [5]. Patients' were preoccupied with the threat of infection and been diverted away from their gastric symptoms; this is especially true in patients with functional disease, who frequently suffer from generalized anxiety disorders. Patients who prefer a shorter endoscopic wait time because they are anxious and were not considered high-risk for severe structural illness, as their endoscopic yields had minor diagnostic benefit [6-8]. Dyspepsia followed by dysphagia was the most prevalent indication for endoscopy in this group of patients, according to this study. It was noted that dyspepsia was reported in 56.6 % of the patients, which is consistent with earlier published findings [9-11]. Adults seeking medical help with dyspepsia have a frequent but vague complaint. Dyspepsia is the common compliant in up to 40% of

the general population, accounting to 2-5% of all adult consultations in primary care settings. Dyspepsia's precise prevalence is unknown, and it varies by gender and place of origin [12-14]. Dyspepsia is defined by the Rome IV criteria as any combination of the following four symptoms: postprandial fullness, early satiety, epigastric pain, and epigastric burning, which occur at least three days per week during the previous three months with a start of at least six months in advance [15]. Because the case subjects exhibit such a wide variety of symptoms, physicians often treat it empirically with acid suppression treatment in the early stages, particularly in younger age groups. However, dyspepsia is caused by a variety of upper gastrointestinal pathologies that can be appropriately evaluated by upper gastrointestinal endoscopy and definitive treatment provided. It's also worth noting that our referring doctors are aware of the importance of upper gastrointestinal endoscopy in the examination of individuals with dyspeptic symptoms. This might explain the patients' high prevalence of negative endoscopic findings. In the current study dysphagia was seen in 7.2% of cases. Dysphagia means subjects have a sensation of difficulty swallowing. There are many well-known causes for dysphagia, but the epidemiology of dysphagia is not well established. The exact prevalence of dysphagia is uncertain, but it is estimated to be 6–9% in all age groups and 16–22% in patients above 50 years old concluded from the previous studies [16-21]. Our findings were somewhat consistent with Ayuo et al. (2014) who reported the most common symptom was dyspepsia in 1059 (62.7%) followed by dysphagia in 224 (13.3%) among 1690 patients [22]. One interesting finding in our study is unusual high prevalence of Post cricoid web in young females which is 1-2% and Post cricoids cancers in older females seen in North coastal Andhra Pradesh, whose etiology is unknown. This study has some limitations in addition to its retrospective design. Firstly, the behavior of patient consultation practices changed for medical attention during the COVID pandemic and need for procedures were ruinously pursued on basis of alarm symptoms. This would result in referral bias for moderate to severe cases, and therefore the data are not easily generalizable. Second, in the absence of clear-cut criteria to define appropriateness of fast-track endoscopies, we used the ASGE criteria, which may not directly apply for our patient cohort. During the follow-up of patients very few developed COVID 19 and none of the endoscopy staff got COVID 19.

Conclusions: This study highlights, with proper history and clinical screening and appropriate precautions it was possible to provide endoscopy service to the needy without a strict protocol and expensive pre-endoscopy work up like HRCT and RT PCR for all patients, without compromising patient or staff safety. Patients with alarm symptoms like Dysphagia and GI Bleed benefited the most, many patients with functional GI Disorders also were reassured with negative endoscopy and counseling. As during these times, people were in panic mode with all negative things happening around; many of these functional patients with overlap anxiety disorders were scared to death. A positive diagnosis is very important while managing most of these GI disorders.

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