

Effect of Covid on Gaster Intestinal Tract and its Signs and Symptoms

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ABSTRACT

The aim of this descriptive case series was to determine the frequency of various gastrointestinal symptoms of the COVID-19 patients along with the respiratory symptoms. Secondary outcome was to determine the effect of various co-morbid conditions and various sign and symptoms on the length of hospital stay and outcome of disease

Material: In this descriptive case series type study, carried out in the COVID ward in the Jinnah Hospital, Lahore, all patients diagnosed with COVID-19 by consultant physician in the out-patient department and ward were included. Written informed consent was taken from all the participants of the study after explaining the primary objective of the study. The study was carried out from 01-07-2019 to 31-12-2019. Primary objective of this study was to determine the various gastrointestinal symptoms of the COVID-19 patients along with the respiratory symptoms

Results: Among the 386 patients enrolled in the study, 60% were male and 40% were female. Mean age of the patients was 54.14 SD 16.3 years, with around 71% cases of age above 45 years. Abdominal pain, anosmia and diarrhea were the most common GI complaints. Over all, 26% of the patients of COVID had GI symptoms.

Conclusion: GI complaints such as anorexia, nausea, vomiting, diarrhea, and abdominal cramping have been documented in COVID-19 individuals even in the absence of respiratory problems. As a result, COVID-19 disease must be explored in individuals who have mostly GI complaints.

INTRODUCTION

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus, which was exposed in China this year's, has presented a serious danger to world health. All the Coronaviruses have been divided into four smaller groups: alpha, delta, beta, and gamma. Combined to the SARS-CoV, that was the reason of a global pandemic in 2003, SARS-CoV-2 is a member of to the beta group of this family. The lungs are considered as the major organ-system affected in COVID-19 infestation, and also the most of COVID-19 infected cases have normal respiratory symptoms and symbols¹. The most important transmission paths are now thought to be respiratory droplets and touch transmission. This SARS-CoV-2 has been evidenced to be found in the urine and faeces of laboratory-confirmed patients, representing a potential of fecal-oral transmission, according to recent conclusions. However, it is still unidentified if eating virus-contaminated foods may effect in infection and transmission².

Hepato-toxicity has also been documented as a prevalent manifestation in cases with SARS-CoV infection, even though if it is not the main implication of the infection. It is yet unknown how serious the liver damage can be. Numerous researches have reported the occurrence of hepatic toxicity in COVID-19 infections indicative of that 2 percent to 11 percent of patients with COVID-19 had liver diseases and that 16 percent to 53 percent of cases had anomalous both the aminotransferases (i.e ALT and AST)³.

SARS-CoV-2 RNA was formerly exposed in the faeces of the pioneer COVID-19 patient in the United States, who also had stomach symptoms. Decreased appetite, retching, vomiting, and gastroenteritis are common digestive symptoms in COVID-19 cases. From a large survey of 1099 cases in which PCR positive COVID-19 from 552 different hospitals in 30 provinces in China from January 29, 2020 to January 29, 2020, retching and gastroenteritis were documented in 55 (5%) and 42 (3.8%) patients, respectively. During the 2002-2003 SARS pandemic, 16 percent to 73 percent of SARS patients experienced diarrhea at some point during their illness, commonly during the first week. Diarrhea is a predominant digestive complaint in COVID-19 patients, with a frequency ranging from 1.3 percent to 29.3 percent. During the course of the condition, however, symptoms related to git and liver damage have been recorded⁴.

Inflammation or intestine harm accompany gastrointestinal symptoms. Anorexia (83.8%), vomiting (0.8%), diarrhea (29.3%), and stomach discomfort were among the symptoms experienced by patients with digestive problems (0.4 percent). Individuals with

digestive symptoms had a longer duration from onset to admission and an inferior outcome than patients without digestive symptoms. Notably, there were stomach symptoms in 7 (3.4 percent) of the patients but no respiratory symptoms⁵

The GI signs of protracted COVID are less well understood. Protracted or long-COVID disease has been associated with gastrointestinal problems such as stomach discomfort and diarrhea. Unfortunately, a thorough examination of the GI symptoms of protracted COVID is lacking, and the consequences for sufferers, medical groups, and organizations are unknown. There is also uncertainty how these symptoms may differ depending on the many classifications in use. As of currently, these symptoms are not part of the conventional of long COVID disease. Because these expressions are likely to have an impact on one's quality of life and may result in work-related absences, it is critical to identify these and their occurrence.

Based on these discoveries, doctors should be aware that digestive symptoms, such as nausea, vomiting, diarrhea, may be a presenting characteristic of COVID-19 that give the impression before respiratory symptoms, and may even be the only presenting symptom of COVID-19 on some cases. As a result, knowing gastrointestinal symptoms that precede COVID-19 respiratory problems may be crucial for effective initial identification and treatment. The aim of this descriptive case series was to determine the frequency of various gastrointestinal symptoms of the COVID-19 patients along with the respiratory symptoms. Secondary outcome was to determine the effect of various co-morbid conditions and various sign and symptoms on the length of hospital stay and outcome of disease.

MATERIAL AND METHODS

In this descriptive case series type study, carried out in the COVID ward in the Jinnah Hospital, Lahore, all patients diagnosed with COVID-19 by consultant physician in the out-patient department and ward were included. Written informed consent was taken from all the participants of the study after explaining the primary objective of the study.

The study was carried out from 01-07-2019 to 31-12-2019. Primary objective of this study was to determine the various gastrointestinal symptoms of the COVID-19 patients along with the respiratory symptoms. Suspected cases of COVID-19 were sent for nasopharyngeal swab PCR for COVID-19 for confirmatory diagnosis. After confirmed diagnosis of COVID-19, all patients

were interviewed by the primary investigator using a pre-designed Performa.

Age, gender, comorbid conditions, fever (axillary temp more than 100.6° F), cough, shortness of breath, anorexia, fatigue, body aches, vomiting, abdominal distension, abdominal discomfort, diarrhea, disgeusis, blood in stool, anosmia, dyspepsia, palpitation, chest pain, swelling of body, rash on body, headache, limb weakness, insomnia, sore throat, arthralgia, orthopnea, post-nasal drip, flu, altered sensorium, outcome of disease, and length of hospital stay (until discharge or dead).

All the data entered on the pre-designed data entry sheets was entered and analyzed using SPSS version 20.0. All the qualitative variables were analyzed and frequency / percentage were calculated while mean with standard deviation was calculated for quantitative variables. Primary outcome was to determine the frequency of various signs and symptoms seen in these patients. Secondary outcome was to determine the effect of various comorbid conditions and various sign and symptoms on the length of hospital stay and outcome of disease. Data was stratified for age, gender, co-morbid conditions and post-stratification chi square test was applied to determine the effect of these on the outcome (p value of <0.05 was taken significant).

RESULTS

In this descriptive case series, done in the COVID ward at the Jinnah Hospital, Lahore, and suspected COVID -19 patients were enrolled and sent for nasopharyngeal swab PCR for confirmation of COVID-19. Serious patients requiring oxygen or CPAP were admitted in ICU for COVID-19, rests of the patients were admitted in isolation COVID-19 ward. Among the 386 patients enrolled in the study, 60% were male and 40% were female. Mean age of the patients was 54.14 SD 16.3 years, with around 71% cases of age above 45 years. Table 1: showing the details of demographic variables and co-morbid conditions among the patients of COVID-19. Table 2: showing the frequency of patients with various signs and symptoms during COVID-19 including various gastrointestinal features of COVID-19. Table 3: showing the abnormally raised labs at the diagnosis of COVID-19 including AST, ALT, CRP, D dimer and serum ferritin.

Table 4: showing the details of demographic variables and co-morbid conditions among the patients of COVID-19

Variables	Total cases		Patients with GI symptoms		
	No.	%	No.	% of total cases	
Age groups	<20 years	13	3.37	8	2.1
	20-45 years	96	24.87	29	7.5
	46-60 years	144	37.31	42	10.9
	60+ years	133	34.46	23	6.0
Gender	Male	230	60.00	48	12.4
	Female	156	40.00	53	13.7
Co-morbid conditions	Diabetes	184	48	39	10.1
	Hypertension	182	47	46	11.9
	Ischemic heart disease	71	18	16	4.1
	Lung disease	27	7	6	1.6
	Kidney disease	38	10	11	2.8
	Chronic liver disease	18	4.7	7	1.8
	Smoker	13	3.4	3	0.8

Table 5: showing the frequency of patients with various signs and symptoms during COVID-19

Symptoms Of Covid-19	Frequency (%)	
	Yes	No
GI Symptoms Of Covid	102 of 386	(26.4%)
Anorexia	22 (6)	364 (94)
Vomiting	49 (13)	337 (87)
Abdominal discomfort	55 (14)	331 (86)
Diarrhea	56 (15)	330 (85)

Disgeusis	38 (10)	348 (90)
Blood in stool	4 (1)	382 (99)
Anosmia	28 (7)	358 (93)
Other Symptoms		
Fever	265 (69)	121 (31)
Cough	176 (45.6)	210 (54.4)
Fatigue	8 (2)	378 (98)
Body aches	29 (8)	357 (92)
Shortness of breath	274 (71)	112 (29)
Palpitation	10 (3)	376 (97)
Chest pain	10 (3)	376 (97)
Swelling of body	8 (2)	378 (98)
Headache	2 (1)	384 (99)
Limb weakness	7 (2)	379 (98)
Insomnia	1 (0.26)	385 (99.7)
Sore throat	16 (4)	370 (96)
Arthralgia	2 (1)	384 (99)
Orthopnea	6 (2)	380 (98)
Post Nasal Drip	4 (1)	382 (99)
Flu	5 (1)	381 (99)
Altered sensorium	21 (5)	365 (95)

Table 6: showing the abnormal lab results at the diagnosis of COVID-19

Lab Variable	Abnormally raised Laboratory results in COVID-19			
	No. of cases	% of total cases	No. of cases with GI symptoms	% of total cases with GI symptoms
Raised ALT	79	21	19	4.9
Raised AST	251	65	71	18.4
Raised Serum Bilirubin	44	11	11	2.8
Raised LDH	278	72	66	17.1
Raised PT	166	43	44	11.4
Raised ALP	208	54	57	14.8
Raised D Dimers	154	45	28	7.3
Raised Sr Ferritin	155	40	57	14.8
Raised CRP	370	95.8	101	26.2

DISCUSSION

Despite the prevalence of life-threatening pulmonary disease owing to coronavirus 2 (SARS-COV-2), nothing is known about its mode of presentation, disease course, transmissibility, or pathogenesis. Fever, fatigue, and a dry cough are symptoms. GI symptoms have been reported without respiratory disease. The digestive system's GI tract has numerous many ACE receptors (ACE2 receptor). Lack of appetite, retching, and diarrhoea are common in COVID-19. Covid patients' gastrointestinal complaints are studied.

Zili Zhou accomplished study to see how gastrointestinal problems affected COVID-19 infected individuals Positive RT-PCR data from patients' faeces suggest fecal-oral transmission of COVID-19. Wuhan enrolled 254 patients in 2019. Patients with and without GI symptoms were separated. Clinical characteristics, lab results, complications, treatment method, and clinical outcomes were compared between GI patients and controls. 211 (83%) individuals experienced fever, cough, and GI symptoms. Female patients had significantly more GI symptoms than male patients (62.8% vs 37.2%, P = 0.033). In the abdominal complaints grouping, haemoglobin was significantly lower than in the non-GI problems category (P = 0.028), whereas CRP and ALT were significantly higher⁶

Peijie Zhong et al. studied symptoms and likely mechanisms of gut and liver toxicities in COVID-19 to raise knowledge regarding digestive system involvement. According to international studies, COVID-19 patients also experience diarrhea, nausea, vomiting, and loss of appetite. In a study of 318 confirmed COVID-19 cases in the US, 61.3% of patients displayed at least one gastrointestinal symptom, with loss of appetite (34.8%), diarrhea (33.7%), and nausea (33.7%). (26.4 percent). 74 (11.4%) of 651 COVID-19 patients had at least one GI symptom (nausea, vomiting, or diarrhea). China's 204 COVID-19 patients had 34.0%

diarrhea. People with gastrointestinal symptoms take longer to be hospitalized after COVID-19 than those without (9.0 vs 7.3 days). According to the study, COVID-19 patients admitted to medical floors and ICUs had more gastrointestinal difficulties than those in the ER (60.0 vs 23.5 percent). GI and liver dysfunction are early SARS-CoV-2 infection markers, according to studies^{7,8}

Using the current information, Cheng Lee conducted an experiment to determine how COVID-19 affects the digestive system and liver. In China, 1099 COVID-19 patients were reported from 552 hospitals. Nausea (5%), vomiting (3.8%), and diarrhea (3.8%) were recorded in 55 (5%), 42 (3.8%), and 55 (3.8%) individuals, respectively. During the SARS outbreak in 2002-2003, patients' diarrhea was recorded in 16 percent to 73 percent of cases. Diarrhea is a prevalent abdominal complaint in COVID-19 infected cases, with a frequency ranging from 1.3 percent to 29.3 percent. Lack of appetite (83.8%), retching (0.8%), gastroenteritis (29.3%), and stomach discomfort were among the symptoms experienced by patients with digestive problems (0.4 percent). In addition, the Wang et al study found that 44 of 153 (29%) COVID-19 patients with documented infection of the virus in their faeces.

Among 39 (53.42%) of 73 hospitalized COVID-19 patients in China tested positive for SARS-CoV-2 RNA in faeces, according to Xiao et al. 17 patients (23.29%) remained stool-positive following negative pulmonary tests. All studies indicated that SARS-CoV-2 sickness occurs in the GI tract and that virus-infected GI cells discharge infectious forms of the virus⁹.

Zhang Hu et al. studied coronavirus patients with GI symptoms (COVID-19). Wuhan's Central Hospital evaluated 504 patients' clinical data. All the participants were divided into two subgroups: the G group, which had 164 abdominal problems, and the NG group, which did not. Appetite, diarrhea, nausea, stomachache, and vomiting are GI symptoms. In groups NG and G, symptom onset to admission was 8.7 6.2 and 8.0 4.9 days, respectively ($P = 0.170$). 115 NG patients (33.7%) and 63 G patients (38.5%) had comorbidities ($P=0.302$). 54 G patients and 38 NG patients had severe pneumonia. Also, more G patients had severe pneumonia than NG patient's¹⁰

Understanding the progression of abdominal symptomatology is critical since they could be of those that are the earliest signals of COVID-19 illness. A small case series from China documented 9 individuals who originally arrived with just gastrointestinal problems, and four of the nine victims did not experience elevated temperatures or pulmonary signs. 42 The first documented COVID-19 person in the USA arrived to the physician with retching and vomiting rather than the fever or breathlessness. 43 Other case reports indicate that COVID-19 illness begins with nausea, diarrhoea, and stomach discomfort, accompanied by fever and breathlessness after a few days. Early GI problems may

make diagnosing COVID-19 challenging since doctors may be misled.

CONCLUSION

Nevertheless, same complaints may serve as early indications of COVID-19 illness, prompting further screening and measures. Given the worldwide catastrophe, accurate screening of persons with probable COVID-19 infection is critical for identifying and isolating them. GI complaints such as anorexia, nausea, vomiting, diarrhoea, and abdominal cramping have been documented in COVID-19 individuals even in the absence of respiratory problems. As a result, COVID-19 disease must be explored in individuals who have mostly GI complaints.

REFERENCES

1. Lee IC, Huo TI, Huang YH. Gastrointestinal and liver manifestations in patients with COVID-19. *Journal of the Chinese Medical Association*. 2020 Apr 21.
2. Struyf T, Deeks JJ, Dinnes J, Takwoingi Y, Davenport C, Leeflang MM, Spijker R, Hoof L, Emperador D, Domen J, Horn SR. Signs and symptoms to determine if a patient presenting in primary care or hospital outpatient settings has COVID-19. *Cochrane Database of Systematic Reviews*. 2021(2).
3. Zhang Y, Zheng L, Liu L, Zhao M, Xiao J, Zhao Q. Liver impairment in COVID-19 patients: A retrospective analysis of 115 cases from a single centre in Wuhan city, China. *Liver international*. 2020 Sep;40(9):2095-103.
4. Peyrin-Biroulet L. Will the quality of research remain the same during the COVID-19 pandemic. *Clinical Gastroenterology and Hepatology*. 2020 Aug 1;18(9):2142.
5. Gul F, Lo KB, Peterson J, McCullough PA, Goyal A, Rangaswami J. Meta-analysis of outcomes of patients with COVID-19 infection with versus without gastrointestinal symptoms. In *Baylor University Medical Center Proceedings 2020 Jul 2 (Vol. 33, No. 3, pp. 366-369)*. Taylor & Francis.
6. Zhou Z, Zhao N, Shu Y, Han S, Chen B, Shu X. Effect of gastrointestinal symptoms on patients infected with coronavirus disease. *Gastroenterology*. 2019.
7. Zhong P, Xu J, Yang D, Shen Y, Wang L, Feng Y, Du C, Song Y, Wu C, Hu X, Sun Y. COVID-19-associated gastrointestinal and liver injury: clinical features and potential mechanisms. *Signal Transduction and Targeted Therapy*. 2020 Nov 2;5(1):1-8.
8. Gul F, Lo KB, Peterson J, McCullough PA, Goyal A, Rangaswami J. Meta-analysis of outcomes of patients with COVID-19 infection with versus without gastrointestinal symptoms. In *Baylor University Medical Center Proceedings 2020 Jul 2 (Vol. 33, No. 3, pp. 366-369)*. Taylor & Francis.
9. Lee IC, Huo TI, Huang YH. Gastrointestinal and liver manifestations in patients with COVID-19. *Journal of the Chinese Medical Association*. 2020 Apr 21.
10. Zhang H, Liao YS, Gong J, Liu J, Xia X, Zhang H. Clinical characteristics of coronavirus disease (COVID-19) patients with gastrointestinal symptoms: A report of 164 cases. *Digestive and Liver Disease*. 2020 Oct 1;52(10):1076-9.