

# Gastrointestinal symptoms and Hematological changes in COVID 19 patients

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## ABSTRACT

**Aim:** To see the different gastrointestinal clinical presentations and Hematological changes in COVID 19 patients.

**Methodology:** A prospective study was conducted at Department of medicine Liaquat university of medical and health sciences from April 2020 to July 2020. The total sample of 80 subjects who matched the inclusion and exclusion criteria within the study were selected. Patients were assessed clinically and by ultrasound to exclude surgical causes. Data was collected by an interviewer on questionnaire and analyzed on SPSS.

**Results:** The mean age was 47 years, which ranged from 20 to 70 years. There were 62(77.5%) males and 18(22.5%) were females. According to epidemiologic characteristics 5(6.2%) had travel history, 7(8.7%) had positive contact with COVID 19 history and rest 68(85%) had no history of contact and travel. Out of 80 cases 23(28.7%) had diarrhea, 16(20%) had abdominal pain, 32(40%) had fever and 9(11.25%) had loss of appetite. Laboratory tests showed, raised leukocytes count and neutrophils was present in 18(22.5%) and 23(28.75%) respectively. Lymphocytopenia was observed in 33 (41.2%) cases. CRP and ferritin were increased in 51(63.7%) and 49(61.25%) cases respectively. Only 2 patients were diagnosed as acute appendicitis on abdominal Ultrasonography.

**Conclusion:** GI symptoms are common in covid patients other than respiratory symptoms. Patients can present with only GI symptoms in COVID so it is necessary to screen the patient for COVID and rule out the surgical causes.

**Keywords:** Gastrointestinal symptoms, hematological changes, COVID 19 patients

## INTRODUCTION

COVID virus is a situation throughout the world since December 2019 with a considerable impact on socio-economic and health. This virus was first reported in Wuhan, China, then this contagious virus has spread throughout the world with dangerous consequences. COVID virus is from the family of enveloped, single-stranded RNA viruses<sup>1</sup>. Patients affected with this virus may be asymptomatic, or can present with mild to moderate symptoms (mild respiratory symptoms), severe symptoms (shortness of breath, decrease O<sub>2</sub> saturation, or pneumonia) and symptoms of serious disease (acute respiratory distress syndrome, respiratory failure, shock or multiorgan involvement).<sup>2</sup>

COVID virus enters in the host cells by using the angiotensin-converting enzyme 2 (ACE2) receptors. ACE2 receptors are present in the alveolar type II cells of the lungs and gastrointestinal (GI) epithelial cells.<sup>3</sup> Researchers have reported that Gastro-intestinal clinical presentation are common in COVID patients.<sup>4</sup> The largest study on gastrointestinal involvement in COVID-19 patients was conducted in Wuhan, China over a period of 7 weeks and their results were that GI presentation was about 16% (183) and anorexia was the first presentation in their study and the next was the nausea and vomiting in approximately two-third of the cases, while diarrhea and abdominal pain were present in 37% and 25%, respectively.<sup>5</sup>

Hematological changes have been observed among affected cases, decreased lymphocyte count is observed as an important laboratory finding, with prognostic potential. A meta-analysis of nine studies reported that thrombocytopenia is significantly associated with the severity of the COVID-19 disease.<sup>6</sup> Other poor prognostic factors associated with covid 19 are increased CRP and ferritin level.<sup>7</sup> The aim of this study is to see the different GI clinical presentations and hematological changes in COVID patients belonging to local Hyderabad community.

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## METHODOLOGY

A prospective study was conducted to evaluate the gastrointestinal presentations and different hematological changes in COVID 19 patients. The study was carried out in medical ward at Liaquat university of medical and health sciences from April 2020 to July 2020. The study population included both gender age 20 to 70 years with COVID positive. Study participants who were not willing to participate in study, age <20 and >70 years and COVID negative were excluded. The total sample of 80 subjects who matched the inclusion and exclusion criteria within the study were selected. Patients were assessed clinically and by ultrasound to exclude surgical causes. Data collection and analysis was conducted by an interviewer on questionnaire and SPSS. The written and informed consent was obtained from patients. The ethical approval was obtained from ethical review committee.

## RESULTS

Total 80 cases were enrolled after meeting with inclusion and exclusion criteria. COVID was confirmed by PCR. The mean age was 47 years, ranged from 20 to 70 years. There were 62 (77.5%) males and 18(22.5%) were females. According to epidemiologic characteristics 5 (6.2%) had travel history, 7 (8.7%) had positive contact with COVID 19 contact history and rest 68 (85%) had no contact and no travel history. Most common gastrointestinal symptom was Diarrhea. Out of 80 cases 23(28.7%) had diarrhea, 16(20%) had abdominal pain, 32(40%) had fever and 9(11.25%) had loss of appetite (Table 1).

In laboratory tests Hb was normal in all patients, leukocytes count was raised in 18(22.5%) cases and normal leukocytes count in 62(77.5%) cases. Neutrophils was high in 23(28.75%) and normal neutrophil count was 57(71.25%). Lymphocyte count was raised in 7(8.75%) cases, low lymphocyte count was 33(41.2%) and rest were with normal lymphocyte count. CRP was increased in 51(63.7%) and ferritin was increased in 49(61.25%) cases (Table 2).

Two patients were diagnosed as acute appendicitis on abdominal ultrasonography and rest were had no surgical emergency.

Table 1: Gastrointestinal clinical presentation in COVID 19 patients (n=80)

Symptoms	No. of cases	Frequency
Diarrhea	23	(28.7%)
Abdominal Pain	16	(20%)
Fever	32	(40%)
Loss of appetite	9	(11.25%)

Table 2: Hematological changes in COVID 19 patients

Parameters	Description	Frequency
Hb	Normal	80(100%)
Total Leukocyte count	Normal	62(77.5%)
	Low	18(22.5%)
Platelets count	Normal	77(96.2%)
	Low	3(3.7%)
Neutrophill count	Normal	57(71.25%)
	High	23(28.75%)
Lymphocyte count	Normal	40(50%)
	High	7(8.75%)
	Low	33(41.2%)
CRP	Normal	29(36.2%)
	High	51(63.7%)
Ferritin level	Normal	31 (38.75%)
	High	49 (61.25%)

## DISCUSSION

COVID-19 pandemic started in December 2019, with the first case reported in the city of China, Wuhan. This pandemic has exhausted the major resources of developed countries leading to financial crisis and the health system almost crippled unfortunately. This zoonotic disease has a relatively small incubation period, that lasts from 2 to 12 days and disease course usually lasts for 28 days either leading to complete recovery, residual lung damage, circulatory collapse or death in about 5% of the cases<sup>8,9</sup>.

Most common infected cases were males 77.5% and females 22.5%. These findings are similar with study by Omair and Muhammad et al which reported 82% males and 23% females<sup>10</sup>. Most patients presented with diarrhea 28.7%, abdominal pain 20%, Fever 40% and loss of appetite 11.25%. Zheng T et al in china reported their study findings as diarrhea 8.1%, abdominal pain 0.8%, fever 83% and loss of appetite 4.7%<sup>11</sup>. while another study by Pervaiz A et al reported similar findings to our study as diarrhea and abdominal pain 16.1% and fever 67.7%<sup>12</sup> in our study lymphopenia was 41.2% while Chen et al reported 38% lymphopenia<sup>13</sup> The coronavirus causes lymphocytic depletion in affected patients<sup>14,15</sup> and the mechanism may be direct attack of coronavirus on lymphocytes or by immune-mediated apoptosis of lymphocytes<sup>16</sup>. Increased level of CRP can be considered as a independent risk factor for severity of disease, which is consistent with current research and increased CRP level reflect a persistent inflammatory state<sup>17</sup>.

Our study shows that GI symptoms and hematological changes are associated with covid 19 and GI symptoms are common in covid patients other than respiratory symptoms. Patients can present with only GI symptoms in COVID hence it is important to screen the patient for COVID and rule out the surgical causes.

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