ORIGINAL ARTICLE

Comparison of Gastrointestinal Symptoms and Disease Severity in COVID-19 Patients

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ABSTRACT

Background: In COVID 19 patients, before the onset of respiratory distress, GI symptoms occur earlier. GI Symptoms are common, and in many patients the first symptoms are diarrhea or vomiting rather than respiratory problems. The aim of current study was to find out the most common GI symptoms and its effect on disease severity.

Methods: A cross sectional study was conducted at Sir Gaga Ram Hospital Lahore from March to April 2020 at Corona Isolation Wards. Total 150 covid-19 polymerase chain reaction (PCR) positive patients were enrolled. Patients were keenly observed for symptoms and all the symptomatic patients were enrolled in study. Patient's demographic data and presenting complaints were recorded on predesigned Performa. Data was enter and analyzed by using SPSS 21.0. Association between disease severity and GI was determined by using Chi-square test. P-value $\leq$0.05 was considered as significant.

Results: Total 150 patients were enrolled in current study. The mean age of patients were in mild group were 37$\pm$15 and moderate severity group were 41$\pm$18. There were 58(44.2%) male in mild and 10(52.6%) in moderate group. There were 73(55.7%) female in mild and 9(47.3%) in moderate group. Most common respiratory symptoms was anosmia 65(43.3%), followed by cough 47(31.39) and sore throat 31(20.7%). Most common gastrointestinal symptoms was Diarrhea 49(32.7%) and nausea 48(57.9%). Nausea was present in 37(28.2%) mild cases and 11(57.9%) in moderate cases. The significant association was observed between disease severity and abdominal pain, nausea.

Conclusion: Majority of patients with COVID-19 presents with both respiratory and gastrointestinal symptoms. Patients with mild to moderate severity of disease have diarrhea and nausea the most common GI symptoms. GI Symptoms are common, and in many patients rather than respiratory distress in early onset.

Keywords: COVID-19, Gastrointestinal symptoms, Disease severity

INTRODUCTION

In 2019, the coronavirus disease pandemic (COVID -19) has been declared a global emergency due to its rapid spread and high mortality rate. There was an increasing trend of patients infected with COVID-19, the causative agent of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is rapidly increasing worldwide.[1] Acute respiratory distress syndrome (ARDS), pneumonia, and multiple organ failure are the severe symptoms in COVID -19 patients. The most common respiratory symptoms were shortness of breath and cough [2] There is evidence that the disease is linked to non-respiratory symptoms, particularly gastrointestinal (GI) problems such diarrhea, nausea, and loss of appetite.[3-5]

In COVID-19 patients, before the onset of respiratory distress, GI symptoms occur earlier. GI Symptoms are common, and in many patients the first symptoms are diarrhea or vomiting rather than respiratory distress. GI problems appear in the majority of Covid-19 patients at the beginning of respiratory problems and fever. [6] The percentage of people who have diarrhea ranges from 3 to 40%. [5]

Gastrointestinal Problems have a extensive interval between beginning and admission to the emergency department, potentially making them more infectious during this time.[7] Although 80 percent of COVID-19 patients have modest symptoms, the majority of studies have focused on people who are severely or critically ill.s [8-10] therefore there is a need to describe the clinical manifestation of mild severity patients so that these suspected cases whoe were not sick prompt rapid self-quarantine. Furthermore, these patients may contribute to rapid spread of pandemic without knowingly distributing the virus in the outpatient setting; this group appears to be a key contributor to the pandemic.[11]

Because COVID -19 testing has primarily focused on individuals with respiratory symptoms rather than digestive symptoms, it's possible that a large number of undetected people with low disease severity but digestive symptoms like diarrhea are unknowingly spreading the virus. Therefore this study was conducted to find out the most common GI symptoms and its effect on disease severity.

METHODS

A cross sectional study was conducted at Sir Gaga Ram Hospital Lahore from March to April 2020 at Corona Isolation Wards. Total 150 covid-19 polymerase chain reaction (PCR) positive patients were enrolled. Patients were keenly observed for symptoms and all the symptomatic patients were enrolled in study. Patients were categorizes according to disease severity using clinical management protocol of COVID-19.[12] All the patients who have incomplete history and unable to define their presenting complications and previous history of GI problem were excluded from study. Patient's demographic data and presenting complaints were recorded on predesigned Performa. Data was enter and analyzed by using SPSS 21.0. All the qualitative variables were presented by frequency and percentages and quantitative variables with Mean$\pm$ SD. Association between disease severity and GI was determined by using Chi-square test. P-value $\leq$0.05 was considered as significant.

RESULTS

Total 150 patients were enrolled in current study. According to disease severity patients were divided into two groups (Mild=131, Moderate = 19). The mean age of patients were in mild group were 37$\pm$15 and moderate severity group were 41$\pm$18. There were 58(44.2%) male in mild and 10(52.6%) in moderate group. There were 73(55.7%) female in mild and 9(47.3%) in moderate group. (Table 1)

Table 1: Demographic information

Variables	Disease Severity	
	Mild(n=131)	Moderate(n=19)
Age	37$\pm$15	41$\pm$18
Male	58(44.2%)	10(52.6%)
Female	73(55.7%)	9(47.3%)

Most common respiratory symptoms was anosmia 65(43.3%), followed by cough 47(31.39) and sore throat 31(20.7%). According to disease severity sore throat was present in 28(21.4%) mild cases and 3(15.8%) in moderate cases. Cough was present in 42(32.1%) mild cases and 47(31.39) in moderate cases. Anosmia was present in 54(41.2%) mild cases and 11(57.9%)) in moderate cases. (Table 2)

Table 2: Respiratory Symptoms of COVID-19 patients

| Respiratory symptoms | Disease Severity | | | |
	Mild(n=131)	Moderate (n=19)	Total	P-value
Sore throat	28(21.4%)	3(15.8%)	31(20.7%)	0.574
Cough	42(32.1%)	5(26.3%)	47(31.39)	0.997
Fever	62(47.3%)	9(47.4%)	71(47.3%)	0.997
Anosmia	54(41.2%)	11(57.9%)	65(43.3%)	0.89

Table 3: Gastrointestinal Symptoms of COVID-19 Patients

| Gastrointestinal Symptoms | Disease Severity | | | |
	Mild(n=131)	Moderate (n=19)	Total	P-value
Fatigue	38(29.0%)	4(21.0%)	42(28.0%)	0.002*
Diarrhea	40(30.5%)	9(47.4%)	49(32.7%)	0.144
Nausea	37(28.2%)	11(57.9%)	48(57.9%)	0.010*
Abdominal Pain	10(7.6%)	6(31.6%)	16(10.7%)	0.02*

Most common gastrointestinal symptoms was Diarrhea 49(32.7%) and nausea 48(57.9%). According to disease severity diarrhea was present in 40(30.5%) in mild cases and 9(47.4%) in moderate cases. Nausea was present in 37(28.2%) mild cases and 11(57.9%) in moderate cases. The significant association was observed between disease severity and abdominal pain, nausea. (Table 3)

DISCUSSION

GI Symptoms appear earlier in COVID-19 patients, at the beginning of respiratory distress. GI Symptoms are common, and in many patients, diarrhea or vomiting, rather than respiratory distress, is the first sign. Unknowingly, a large number of individuals with mild severity have digestive problem like diarrhea are the reason to transmit disease. Therefore, current research was conducted to identify the most common GI symptoms and their impact on disease severity.

In current study the mean age of infected patients were in mild group were 37±15 and moderate severity group were 41±18. Which indicate that majority of patients were from middle aged. Several studies reported that the patients infected with COVID-19 were middle aged and older population.[13-15]

The results of current study revealed majority of the female were infected with COVID-19 as compared with males. that there were 58(44.2%) male in mild and 10(52.6%) in moderate group. There were 73(55.7%) female in mild and 9(47.3%) in moderate group. These findings were also similar with the study conducted by Liu K et al which reveals that majority of the patients were females.[13] The most common respiratory symptoms in this study was anosmia 65(43.3%), followed by cough 47(31.39) and sore throat 31(20.7%). A study conducted in china 2019 on the clinical characteristics showed that the most common symptoms were fever and cough.it was concluded that Covid-19 expanded quickly throughout China over the first two months of the current outbreak, causing varied degrees of disease. Many patients did not have a fever, and many did not have any abnormal radiologic findings.[16]

The results of current study showed that the most common gastrointestinal symptoms was Diarrhea 49(32.7%) and nausea 48(57.9%). According to disease severity diarrhea was present in 40(30.5%) in mild cases and 9(47.4%) in moderate cases. Nausea was present in 37(28.2%) mild cases and 11(57.9%) in moderate cases. The significant association was observed between disease severity and abdominal pain, nausea. Wang et al., [17] and Huang et al., [18] found that patients admitted to the intensive care unit experience frequent stomach pain, which is consistent with the current study. The results of the meta-analysis, on the other hand, revealed that there was no significant link between the presence of GI symptoms and COVID -19 severity levels. Despite the absence of statistical significance, it was clear that the proportion of patients with severe disease (20.5%) was higher than that of individuals with no GI symptoms (18.2%).[19] another study on digestive symptoms in COVID-19patients with mild severity revealed that most common digestive symptoms were diarrhea which is the first symptom of onset of disease. Patients who have digestive symptoms need more care than patients with respiratory symptoms.[20]

CONCLUSION

Majority of patients with COVID-19 presents with both respiratory and gastrointestinal symptoms. Patients with mild to moderate severity of disease have diarrhea and nausea the most common GI symptoms. Patients with low severity have fever, anosmia, cough, sore throat, diarrhea and nausea. . GI Symptoms are common, and in many patients rather than respiratory distress in early onset. Unknowingly, a large number of individuals with low disease severity but digestive symptoms such as diarrhea transmit the virus.

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