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Analysis of the primary presenting symptoms and hematological findings of COVID-19 patients in Bangladesh

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ABSTRACT: ***Objective:*** SARS-Cov-2 infection or COVID-19 is a global pandemic. From the time of identification to till, multiple clinical symptoms and parameters have been identified by the researchers of various countries and regions regarding the diagnosis and presentations of COVID-19 disease. In this manuscript, we investigated the primary symptoms and basic hematological presentations of SARS-CoV-2 infection among the Bangladeshi patients. ***Methodology:*** We have collected the disease history of mild to moderate degree of COVID-19 patients; hematological and biochemical on admission reports of moderate degree COVID-19 patients. All of them were tested positive for SARS-CoV-2 by RT-PCR in different institutes in Bangladesh. ***Results:*** According to this study though COVID-19 patients in Bangladesh commonly presented with fever, cough, fatigue, shortness of breath, and sore throat, but symptoms like myalgia, diarrhea, skin rash, headache, Abdominal pain/cramp, nausea, vomiting, restlessness, and a higher temperature of $>100^0$F have a greater presentation rate and more

frequent than other published studies. CRP and Prothrombin time was found to increase in all the patients. Serum ferritin, ESR, SGPT, and D-Dimer were found increased among 53.85%, 80.43, 44%, and 25% patients respectively. 17.39% of the patients had leucocytosis and neutrophilia. 28.26% of patients presented with lymphocytopenia. 62.52% of patients had mild erythrocytopenia. ***Conclusion:*** Despite some similarities, our study has evaluated a different expression in presenting symptoms in the case of COVID-19 patients in Bangladesh. CRP, Prothrombin time, serum ferritin, ESR, SGPT, D-Dimer, erythrocytopenia, and lymphocytopenia can be initial diagnostic hematological findings and assessment for prognosis COVID-19 disease. Also, gender variations have a different scenario of clinical and laboratory appearance in this region.

Keywords: SARS-CoV-2; COVID-19; real-time RT-PCR; COVID-19 symptoms; COVID-19 hematological findings; Bangladesh

Introduction

SARS-Cov-2 infection or COVID-19 is a current global pandemic. This is a single-stranded RNA virus originated from the beta Coronavirus family. [1] The rapid spread of SARS-CoV-2 has led to the declaration of a global pandemic barely three months after emerging [2]. The disease was first notified in December 2019 in the Hubei province of the Republic of China as a cluster of 27 cases of pneumonia of an unknown cause. [3] All these patients presented with Radiological findings like glassy lung opacity along with clinical presentations like fever, dyspnoea, and dry cough. From the time of identification to till, multiple clinical symptoms and parameters have been identified by the researchers of various countries and regions regarding the diagnosis and presentations of COVID-19 disease. In this manuscript, we investigated the primary symptoms and hematological presentations of SARS-CoV-2 infection among Bangladeshi patients.

Methodology

For the analysis of the presenting symptoms of SARS-CoV-2 infection, we collected the data of COVID-19 patients from Chattagram Civil Surgeon's office, and the Chakoria Upazilla Health and Family Welfare Officer's (UH&FPO) office. All the patients were tested positive for SARS-

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CoV-2 by RT-PCR at Bangladesh Institute of Tropical and Infectious Disease (BITID) and Cox's Bazar Medical College Hospital and were treated (either as outpatient or as inpatient with mild to moderate degree of illness) under different COVID-19 dedicated hospitals in Chattagram district, and Chokoria Upazilla Health complex. A total of 638 patient's data that were tested positive from May 5th to June 5^{th,} 2020 were collected. Each of the patients was individually interviewed to find out the details of the disease symptoms, history, comorbid condition, and associated complaints.

Patients with severe comorbid conditions like severe Bronchial asthma, COPD exacerbation, severe ischemic heart disease, severe uncontrolled diabetes mellitus, advanced renal and hepatic disease, patients with carcinoma, hospitalized and Immuno-compromised patients were not included in this study. Due to misconception and unreliable statement 127patient's data were discarded. 138 patients had comorbid conditions that affected the presenting symptoms or had existing symptoms from before, so these were also excluded. 53 patients did not respond to our call or unwilling to participate in the study. Following exclusion for symptomatic analysis 320 patients of 13 to 56 years (mean age 35.81 years) of age were included in this study.

To evaluate the hematological changes in the patients we gathered the hematological and biochemical on admission reports of 89 admitted patients (moderate degree COVID-19 disease) from May 5th to June 5^{th,} 2020. This included Hemoglobin level, Erythrocyte Sedimentation rate, total and differential count of WBC, RBC, Platelet, C-Reactive Protein (CRP), SGPT, Serum Ferritin, Prothrombin time, D-Dimer, and Serum creatinine. According to the clinical presentation patients with fever were tested for Dengue NS1 antigen, Dengue IgG & IgM antibody, Salmonella Typhi IgM and IgG antibody, ICT for malaria (Antigen for Plasmodium Falciparum, Vivax, Malaria, and Ovale) and Widal test to exclude Dengue, Malaria, and Enteric fever. Patients who had a chronic comorbid condition and any recent history of hematological, biochemical abnormalities, or chest radiograph abnormality within a period of 30days were not included in this study. In our observation, all patients with severe diseases had pre-existing comorbid conditions. Therefore, only the laboratory findings of patients with moderate COVID-19 disease were collected. Following exclusion criteria (others as described earlier) 39 patients were excluded from the study. A total of 50 patient's data were included for the analysis. Male 37 male and 13 female of 31 to 59 years of age (mean 42.8 years).

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Informed consent was obtained in every case. Statistical analysis was done by Graphpad Prism software.

Results and findings

Table 1: A total of 320 patients were included in the study. The patient's ages were 13 to 56years. 208 (65%) were male and 112 (35%) were female. [Figure 1 A] The Mean age of the patients was 35.81±11.68 years. The mean age of male and female patients was 34.16±11.08 years and 38.89±12.19 years respectively. [Figure 1 B] 129 (40.31%) patients were under hospital and 191 (59.69%) were under home isolation. Out of 320 patients, 262(81.88%) were symptomatic and 58 (18.13%) were asymptomatic. The age of male and female symptomatic patients was 34.15±11.07 years and 38.89 ± 12.19 years. The duration of symptoms was 5.66 ± 3.60 days in general. In the case of male patients, this was 5.72 ± 3.50 days and female was 5.56 ± 4.0days. [Figure 1 C]

Sub-group analysis of hospital/home isolated patients hospitalized patients 107 (82.3%) were male, 23 (17.82%) were female; in the case of home isolation 141(71.57%) were male and 50 (26.18%) were female. [Figure 1 D] T-test was not significant among the groups. Age group was as following 10 to 20 years 30patients, 21 to 30 years 53 patients, 31 to 40 years 127 patients, 41 to 50 years 71 patients, and 51 to 60 years 39 patients. [Figure 1 E]

Among all the patients, highest 220 (68.8%) patient presented with fever, weakness 134 (41.9%), cough 126 (57.3%), anorexia 117 (36.6%), myalgia 112 (35.0%), diarrhea 98 (30.6%), nausea 94 (29.4%), chest tightness 93 (42.3%), sleep disturbance 83 (25.9%), headache 75 (23.4%), sore throat 63 (19.7%), respiratory distress 61 (19.1%), rhinorrhoea 53 (16.6%), abdominal crump/ pain 53 (16.6%), small localize rash on the body (with or without itching) 47 (14.7%), vomiting 29 (9.1%), and vertigo 11 (3.4%). [Figure 2 A & B]

The maximum temperature was found 104^0F. 220 patients had a history of fever and 100 patients had no fever history. [Figure 2 D] Out of 220 patients presented with fever, 68 patients had temperatures $<100^0$F and 152 presented with $>100^0$F temp. [Table 1] Febrile patients had a history of a minimum of 2days and a maximum 14days with a mean of 6.09±3.69 days of fever history. Patients with $<100^0$F temperature had a history of 5.72 ± 5.13 days (2 to 14 days) and patients with $>100^0$F temperature had a history of 5.73±2.47 days (2 to 10 days) of febrile history.

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[Figure1 F] Among 126 patients with a history of cough 103 (81.75%) experienced dry cough and 23 (18%) complained of sputum with cough; among them, males were 93(73%) and female were 34 (26.95%). [Figure 2 E] Patients had 5.67±3.60 days (2-14 days) of history of symptoms in general. Male patients have 5.72±3.5 days (2-13 days) and females had 5.56±4.0days (2-14days) of the history of symptoms. These figures are not significant in the t-test, P=0.998. Among the hospitalized patients 107 were male patients of 37±10.95years (22 to 54 years), 48 were female of 36.88±8.13 years (22 to 50years). In the case of home isolation, this was 34.16±10.93 years (17 to 54 years) in males and 39.82±9.84 (24 to 56years) in females. [Figure 2 F]

Table 2: Subgroup analysis of patients according to the symptoms. Fever was presented by 220patients, among this male were 157(71.36%) and females were 63(28.64%); this is 95.73% and 64.29% against total symptomatic male and female patients. Weakness was presented by 134patients, male 98(73.13%), and female 36(26.87%); this is 59.76% and 36.73% against total symptomatic male and female patients. The cough was presented by 126patients male 92(73.01%) and female 34 (26.87%); this is 56.10% and 34.69% against total symptomatic male and female patients. Anorexia was presented by 117patients, male 81(69.23%), and female 36(30.77%); this is 49.39%% and 36.73% against total symptomatic male and female patients. Generalized Myalgia was presented by 122 patients, male 87(77.68%), and female 25(22.32%); this is 53.05% and 25.51% against total symptomatic male and female patients. Diarrhoea was presented by 94 patients, male 61(62.24%), and female 25(26.60%); this is 37.20% and 37.76% against total symptomatic male and female patients. Nausea was presented by 98 patients, male 61(62.24%), and female 37(37.76%); this is 42.07% and 25.51% against total symptomatic male and female patients. Chest tightness was presented by 93 patients, male 52(55.91%), and female 41(44.08%); this is 31.71% and 41.84% against total symptomatic male and female patients. Sleep disturbance was presented by 83 patients, male 51(61.44%), and female 32 (38.55%); this is 31.10% and 32.65% against total symptomatic male and female patients. Headache was presented by 75 patients, male 58(77.33%), and female 17(22.67%); this is 35.37% and 17.35% against total symptomatic male and female patients. Sore throat was presented by 63 patients, male 30(47.61%), and female 33 (52.38%); this is 18.29% and 33.67% against total symptomatic male and female patients. Breathing difficulty was presented by 61 patients, male 43(70.49%), and female 18(29.51%); this is 26.22% and 18.37% against total symptomatic male and female

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patients. Rhinorrhea was presented by 53 patients, male 30(56.60%), and female 23(43.31%); this is 18.29% and 23.47% against total symptomatic male and female patients. Abdominal cramp/pain was presented by 53 patients, male 27(50.94%), and female 28(52.83%); this is 16.46% and 28.57% against total symptomatic male and female patients. Skin rash was presented by 47 patients, male 18(38.30%), and female 29(61.70%); this is 10.98% and 29.59% against total symptomatic male and female patients. Vomiting was presented by 29 patients, male 22(75.86%), and female 7(24.13%); this is 13.41% and 7.14% against total symptomatic male and female patients. Vertigo was presented by 11patients, male 3(27.27%), and female 8(72.73%); this is 1.83% and 8.16% against total symptomatic male and female patients. Restlessness was presented by 82patients, male 57(69.51%), and female 25(30.49%); this is 34.76% and 25.51% against total symptomatic male and female patients. [Figure 3 A & B]

Table 3: 152 (47.50%) patients have a comorbid condition. 47 (30.92%) had T2 DM, 64 (42%) had HTN, 23 (15.13%) had bronchial asthma, 17 (11.2%) had ischemic heart disease, 13 (8.55%) has sinusitis, 20 (13.16%) had other manifestations like a fungal infection, hypothyroid, hepatitis B (+)ve, etc. 42 (13.13%) had DM and HTN and 9 (2.81%) had DM-HTN-Ischemic Heart Disease.

Table 4: Hematological findings, numbers of patients were n=50. Male 37 male and 13 female, mean age was 42.8 ± 8.268 (31to 59years). Routine blood count was done on 46 patients, findings with ranges were as following: Hemoglobin 13.42 ± 1.324 gm/dL (11.5 to 16.3 gm/dL); ESR 29.52 ± 18.46 mm in 1^{st} hour (4 to 46mm in 1^{st} hour), WBC 6851 ± 2721 (4300 to 16000/CC), RBC 4.94 ± 0.65 Million/CC (3.75 to 5.94 Million/CC); Platelet 229804 ± 68932 /CC (160000- 421000/CC), Neutrophil 65.43 ± 12.11% (48 to 85%); Lymphocyte 28.72 ± 11.97 % (20 to 45%), Monocyte 3.89 ± 2.42% (2 to 10%), Eosinophil 1.96 ± 1.26% (0 to 5%), Basophil 0.065 ± 0.24% (0 to 1%). CRP 16.65 ± 18.81 mg/dl (0.95 to 60.2 mg/dl, number of patients 43); SGPT 72.04 ± 49.56 Unit/L (22 to 181, number of patients 25); Serum Ferritin 659.9 ± 488.9 ng/ml (169 to 1550, number of patients 26); Prothrombin Time 14.35 ± 0.95 seconds (13.6 to 15.7 seconds, number of patients 10); D-Dimer 0.25 ± 0.28 µgm/ml (0.025 – 0.68 µgm/ml, number of patients 12), Serum Creatinine 1.08 ± 0.17 mg/dl (0.89 to 1.3 mg/dl, number of patients 12).

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Subgroup analysis of the laboratory routine hematological findings based on patients gender variations are as follows: Hemoglobin level was deceased among 71.42% male and 36.36% female; ESR was increased in 80%male and 72.73% female; Leucocytosis was found in 17.14% male and 18.2% female; Neutrophilic leucocytosis was detected in 17.14% male and 18.2% female; Lymphocytopenia was found among 31.43% male and 18.18% female; Reduce RBC level was noted in 27.27% female this was normal in all male patients. [Figure 3 D]

Subgroup analysis of patients biochemical evaluation depending on patients gender: CRP and Prothrombin time (PT) was increased in all the male and female patients; increased SGPT level was found among 52.94% male and 25% female; increased serum ferritin level was seen among 68.75% male and 37.5% female; 18.8% male and 100% of female (1 of 1 female patient) had an increased level of serum D-Dimer. [Figure 3 F] Difference between the decrease hemoglobin level (P=0.0243) and increased SGPT (P=0.0108) against male and female in Chi-square test and t test patients were found significant, others are not. [Figure 3 G]

Discussion

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causing COVID-19 has rapidly evolved as an epidemic outbreak and infected more than six and a half million individuals all over the world. Besides this, billions of others are directly affected by the citizens are affected by measures of social distancing and the socio-economic impact. COVID-19 is a systemic infection causing a significant impact on the hematopoietic system and hemostasis mechanism. [3] The incubation period of this virus can be up to 14days following exposure. According to the center for disease control and prevention (CDC), the individuals with COVID-19 have had a wide range of symptoms reported ranging from mild to severe illness. These symptoms may appear from the second day till the incubation period. These symptoms may include but not limited to cough, fever, chills, muscle pain, the heaviness of chest, shortness of breath or difficulty breathing, sore throat, and loss of taste or smell. Warning signs of COVID-19 include breathing difficulty, persistent pain or pressure in the chest, inability to wake or stay awake, sings of central cyanoses like bluish lips or face, and confusion. [4] Multiple studies have reported presenting symptoms of COVID-19 worldwide among which several symptoms are common, but due to geographical locations, these symptoms may differ.

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In this study, we analyzed the COVID-19 cases in multiple centers in Bangladesh to assess these symptomatic and hematological variations from the rest of the world. Following exclusion, our study revealed that the primary presenting symptoms of 320 COVID-19 patients in treated in multiple centers in Bangladesh include fever, cough, chest tightness, weakness, anorexia, myalgia, diarrhea, nausea, sleep disturbance, headache, sore throat, respiratory distress, rhinorrhea, abdominal pain, rash or skin lesion, vomiting, vertigo, and restlessness. Among these primary presenting symptoms, fever and cough were most common, and vomiting and vertigo were relatively uncommon. Chest tightness and weakness were relatively common in COVID-19 cases but not as much as fever and cough, which was present in the maximum number of cases affected by SARS-CoV-2 [Figure 2 A & B]. This study can help healthcare professionals in Bangladesh and others to narrow down the suspected COVID-19 affected cases and perform testing accordingly. In Bangladesh, unlike developed countries, real-time reverse transcription-polymerase chain reaction (RT-PCR) is the only available test which is recommended by the Institute of Epidemiology, Disease Control and Research (IEDCR) for the healthcare settings. The real-time RT-PCR is of the high value of interest for the detection of COVID-19 disease due to its simplicity and specificity. [5-7] But unfortunately RT-PCR test has the risk of eliciting false-negative and false-positive results, as the sensitivity and specificity of the RT-PCR test are not 100%. [8] However, a chest computed tomography (CT) was reported 98% and 97% sensitive in two different studies. [9, 10]

One of the early studies regarding clinical characteristics of COVID-19 done on 1099 patients in china revealed that the most common symptoms were fever, cough, and fatigue which resembles findings of our study (68.8%, 57.3%, and 41.9%). [Figure 2 A & B] A study on the systematic review focusing on upper airway symptoms revealed that the common symptoms of COVID-19 were fever, cough, and fatigue. [11] These studies with our study confirm that fever and cough are the two most common onset symptoms of COVID-19, including in Bangladesh. Diarrhoea, on the other hand, was uncommon (3.8%) [12] Which is not uncommon in COVID-19 cases analyzed in our study, 30.6%. Symptoms like Hemoptysis (0.9% Vs 0%) and breathing difficulty (18.7% Vs 19.1%) show similarity with our findings. But Sore throat 13.9% Vs 19.7%; Headache 13.6% Vs 23.4%; Nausea & Vomiting 5% Vs 29% & and 9.1%; Myalgia 14.9% Vs 35% and Skin rash 0.2% Vs 14.7% has revealed a very different trends of presenting symptoms then

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the other reported studies. Our findings of Diarrhoea (30.6%) are similar to Song et al. This study reported SARS-CoV-2 induced diarrhoea could be the onset symptom in patients with COVID-19. [13] Up to 30% of patients with the Middle East respiratory syndrome (MERS) and 10.6% of patients with SARS had diarrhoea as the onset symptom. [14] Bao et al. revealed that vomiting is also associated as the onset symptom in some cases of COVID-19, [15] which was also present in the COVID-19 cases found in our study (9.1%). A similar result was also found in the case of rash/skin lesion in this study, which resembles a case study where a young male with full-body rash was a presenting symptom of COVID-19. [16] 16.6% of the patients in our study complained of mild to moderate amounts of abdominal cramp or pain. This finding also similar to a case study reported earlier that the acute abdomen was the early symptom of COVID-19. [17] During the data collection we have noticed 2 severe cases of COVID-19 with hemoptysis. As all the severe cases had per existing comorbid conditions, so were not included in his study. We have also observed three cases presented only with anorexia and two cases of severe myalgia later were diagnosed as SARS-CoV-2 infection. As an additional finding, restlessness was complained by 85 (25.63%) of patients this was 34.76% of symptomatic males and 25.51% of the symptomatic females [Table 2]. Based on our study findings minimally symptomatic patients or symptoms like abdominal cramp or pain, Myalgia, localize skin lesion or rash, sleep disturbance, and restlessness are important presenting symptoms for this region of COVID-19 disease besides common other symptoms.

According to our study males have a higher infection rate than females 208 (65%) & 112 (35%). [Figure 1 A] Also only 18.12% of patients were asymptomatic whereas symptomatic cases were 81.88%. [Figure 2 C] This is due to lack of test availability and also tests were made available only to the definite symptomatic patients or those who have radiological or laboratory findings suggestive of SARS-CoV-2 infection. The duration of symptoms had no variation depending on gender and age. [Figure 1 C, Figure 2 F] Male patient's home isolation and treatment number are higher than the female patients. [Figure 1 D] In case of age group 31 to 40 years are the most affected n= 127/320 and 10 to 20 are the least n=30/320. [Figure 1 E] Cases with or without fevers were high 68.75% and 31.25% compare to Wei-jie Guan et al. [11] Duration of fever has no significant difference regarding presenting temperature. [Figure 1 F] But temperature $>100^0$F was relatively higher then $<100^0$F 47.5% and 21.25% of total patients, this is 152 (69.09%) and 68 (30.90%) [Table 1] of patients with fever and does not correlate with the other study. [11]

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Male patients were more affected with cough than female and dry cough was more common than sputum. [Figure 2 E] Fever, weakness, anorexia, Myalgia, nausea, headache, breathing difficulty, vomiting, and restlessness were more prominent in the case of male than female patients. [Table 2, Figure 3 A & B] Chest tightness, sore throat, skin lesion/rash, and vertigo were more common in female patients. [Table 2, Figure 3 A & B] Other than that diarrhea, sleep disturbance and rhinorrhoea/nasal congestion have an almost similar presentation in both sexes.

SARS-CoV-2, on the other hand, is a systemic infection with a significant impact on the hematopoietic system and hemostasis, according to the critical review by Terpos et al. done on hematological findings of COVID-19. They have found that COVID-19 disease has prominent manifestations from the hematopoietic system and is often associated with a major blood hypercoagulability. The study indicated that Lymphopenia might be considered as a cardinal finding with prognostic potential. On the other hand, Neutrophil/lymphocyte ratio and peak platelet/lymphocyte ratio may also have prognostic value in determining severe cases. Furthermore, blood hypercoagulability is common among hospitalized COVID-19 patients. Elevated D-dimer levels are consistently reported as well. Thus, the study concluded that in patients with COVID-19 either for hospitalized or not, are at high risk for venous thromboembolism, and an early and prolonged pharmacological thromboprophylaxis with LMWH is highly recommended. [18]

We had analyzed the on-admission laboratory values of 50 patients with moderate degree of COVID-19 disease to assess the overall expression. The study revealed an increased level of ESR, CRP, SGPT, S. Ferritin, Prothrombin time, and D-Dimer. However, the level of Hemoglobin and RBC were decreased and also revealed leucocytosis, neutrophilia, and lymphocytopenia. [Figure 2 C & D] The differential expression of WBC analysis revealed normal mean Neutrophil, Lymphocyte, Monocyte and Eosinophil count. [Figure 3 F] Analysis of biochemical values according to gender revealed differences between males and females in a few parameters. Increased levels of SGPT and S. Ferritin were found among males, and increased levels of D-Dimer were found among females (One in one patient). [Figure 3 E] There were no differences in the levels of CRP and prothrombin times between males and females in patients with COVID-19. [Figure 3 E] Hemoglobin count was decrease in case of male (71.42%) than female (36.36%), though RBC count was normal in all the males and decreased among 27.27% of female patients. [Figure 3 D] Difference between the decrease hemoglobin count and

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increased SGPT against male and female patients were found significant. [Figure 3 G] All these suggests us to provide more attention towards gender in cease of laboratory findings for COVID-19 diagnosis and prognosis

One of our important observation was in delay in diagnosis and therefore treatment from the time of appearance of symptoms, 5.67± 3.56 days. [Figure 1 C] This is probably explained by delay in publishing test results (2 to 3days from sample collection) unwilling to take tests by patients due to testing and social hazards, and strict indications followed for the PCR test (Fever, breathing difficulty, chest discomfort, Chest X ray findings and associated hematological findings) by the COVID-19 tertiary centre doctors due to limited resources.

Conclusion

According to this study COVID-19 patient in Bangladesh though has similarity with the presenting symptoms like fever, cough and berating complaints, but symptoms like myalgia, diarrhea, skin rash, headache, Abdominal pain/cramp, nausea, vomiting, restlessness, and a higher temperature of $>100^0$F have a greater presentation rate and more frequent even as an isolated presentation of SARS-CoV-2 infection than other published studies. Hematological findings like CRP and Prothrombin time were found to increase among all of our study patients. Besides, an increase in Serum ferritin, ESR, SGPT, and D-Dimer along with erythrocytopenia and lymphocytopenia can be important supportive diagnostic criteria. Due to differences in presentations and difficulty in testing, some common symptoms create confusion regarding diagnosis and mislead a SARS-CoV-2 infection like a common viral flue. This might cause morbidity and mortality to COVID-19 patients. Moreover, a chest CT is neither affordable for most of the patients nor available in rural healthcare settings in Bangladesh. So, there is a possibility of patients affected by SARS-CoV-2 may remain undiagnosed due to a false negative real-time RT-PCR test or not being sensitive to the real-time RT-PCR test. Thus, if further tests can't be done to confirm the diagnosis such as a chest CT in patients having these common symptoms and hematological manifestations should be treated as COVID-19 patients to narrow the spread of the COVID-19 and stop the symptomatic patients from developing severe illness any further. Our study has limitations, namely the small sample size and selection of mild to moderate cases that may affect the study outcome. But we believe the above findings will help to

guide physicians and researchers to have a different view and better management of COVID-19 disease during this crisis period.

Conflict of Interests

None to declare.

Ethics Approval and Consent to Participate

The study was approved by the hospital ethics committee, First Affiliated Hospital of Xi'an Jiaotong University, Xi'an, Shaanxi, China. The purpose of this research was explained to the participant. Once the verbal consent was understood and agreed, a written consent was then obtained from the participant. In the case of bellow 16 years old participants written consent was obtained from a parent or guardian.

Authors' contributions

ATMMC: concept development, data collection and analysis, statistical analysis, review and manuscript writing; MRK: review and manuscript writing; MS and MWC: data collection; HMHM: laboratory data collection; GD: data analysis and interpretation; HS: supervision and critical review of the manuscript.

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Declaration

All the authors approved to publish this work.

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TABLES:

Table 1: Baseline characteristics of the patients.

Parameters	**Number**
Number of Patients	320
Male	208 (65%)
Female	112 (35%)
Age (mean ± SD)	35.81±11.07
Age of Male patients (mean ± SD)	34.15±11.07
Age of Female patients (mean ± SD)	38.89 ± 12.19
Asymptomatic	58 (18.12%)
symptomatic	262 (81.88%)
Hospitalized	129 (40.31%)
Home isolation	191 (59.69%)
Duration of symptoms (days ± SD)	5.66 ± 3.60
Male, Duration of symptoms (days ± SD)	5.72 ± 3.50
Female, Duration of symptoms (days ± SD)	5.56 ± 4.0
Body temperature $<100^0$ F	68 (30.90%)
Body temperature $>100^0$ F	152 (69.09%)
Comorbid condition (n)	152 (47.50%)

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Table 2: Symptomatic presentation according to gender variation. The total number of patients n=320.

Symptoms	No. of Patients	Male	Female	% Against male Symptomatic Patients, n=164	% Against female Symptomatic Patients, n=98
Fever	220	157 (71.36%)	63 (28.64%)	95.73%	64.29%
Weakness	134	98 (73.13%)	36 (26.87%)	59.76%	36.73%
Cough	126	92 (73.01%)	34 (26.87%)	56.10%	34.69%
Anorexia	117	81 ((69.23%)	36 (30.77%)	49.39%	36.73%
Mayalgia	112	87 (77.68%)	25 (22.32%)	53.05%	25.51%
Diarrhoea	98	61 (62.24%)	37 (37.76%)	37.20%	37.76%
Nausea	94	69 (73.40%)	25 (26.60%)	42.07%	25.51%
Chest tightness	93	52 (55.91%)	41 (44.08%)	31.71%	41.84%
Sleep disturbance	83	51 (61.44%)	32 (38.55%)	31.10%	32.65%
Headache	75	58 (77.33%)	17 (22.67%)	35.37%	17.35%
Sore throat	63	30 (47.61%)	33 (52.38%)	18.29%	33.67%
Breathing difficulty	61	43 (70.49%)	18 (29.51%)	26.22%	18.37%
Rhinorrhea	53	30 (56.60%)	23 (43.31%)	18.29%	23.47%
Abdominal crump/pain	53	27 (50.94%)	28 (52.83%)	16.46%	28.57%
Skin rash	47	18 (38.30%)	29 (61.70%)	10.98%	29.59%
Vomiting	29	22 (75.86%)	7 (24.13%)	13.41%	7.14%
Vertigo	11	3 (27.27%)	8 (72.73%)	1.83%	8.16%
Restless	82(25.63 %)	57 (69.51%)	25 (30.49%)	34.76%	25.51%

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Table 3: Comorbid conditions n=152

Name of disease	Number of patients and %
T2DM	47 (30.92%)
HTN	64 (42%)
IHD	17 (11.2%)
Sinusitis	13 (8.55%)
Bronchial Asthma	23 (15.13%)
HBV (+) Ve	10 (6.58%)
H/O Pulmonary TB	7 (4.61%)
T2DM and HTN	42 (13.13%)
T2DM, HTN, and IHD	9 (2.81%)
Others (Skin allergy, Migraine, Thyroid disease, etc)	20 (13.16%)

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Table 4: Hematological findings.

Parameters	Number of Patients	Mean±SD	Range	Reference value
Age (In years)	50	42.8 ± 8.268	31- 59	
Hemoglobin (gm/dL)	46	13.42 ± 1.324	11.5 – 16.3	F: 12-16; M: 14-18
ESR (mm in 1st hour)	46	29.52 ± 18.46	4 – 46	F: 0-15; M: 0-10
WBC	46	6851 ± 2721	4300 – 16000	4000 – 11000
RBC (Million/CC)	46	4.94 ± 0.65	3.75 – 5.94	4.2 – 6.2
Platelet	46	229804 ± 68932	160000- 421000	150000 – 450000
Neutrophil (%)	46	65.43 ± 12.11	48 – 75	40 - 75%
Lymphocyte (%)	46	28.72 ± 11.97	20 – 45	20 – 45%
Monocyte (%)	46	3.89 ± 2.42	2 – 10	02 – 10%
Eosinophil (%)	46	1.96 ± 1.26	0 – 5	01 – 06%
Basophil (%)	46	0.065 ± 0.24	0 – 1	0-1%
CRP (mg/dl)	43	16.65 ± 18.81	0.95 – 60.2	<3
SGPT (Unit/L)	25	72.04 ± 49.56	22 – 181	Male: 16-63 FM: 14-59
Serum Ferritin (ng/ml)	26	659.9 ± 488.9	169 – 1550	Male: 13-370 FM: 9-253
Prothrombin Time (Seconds)	10	14.35 ± 0.95	13.6 – 15.7	13
D-Dimer (µgm/ml)	12	0.25 ± 0.28	0.025 – 0.68	<0.5
Serum Creatinine (mg/dl)	12	1.08 ± 0.17	0.89 – 1.3	Male: 0.7-1.3 FM: 0.5-1.2

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FIGURES:

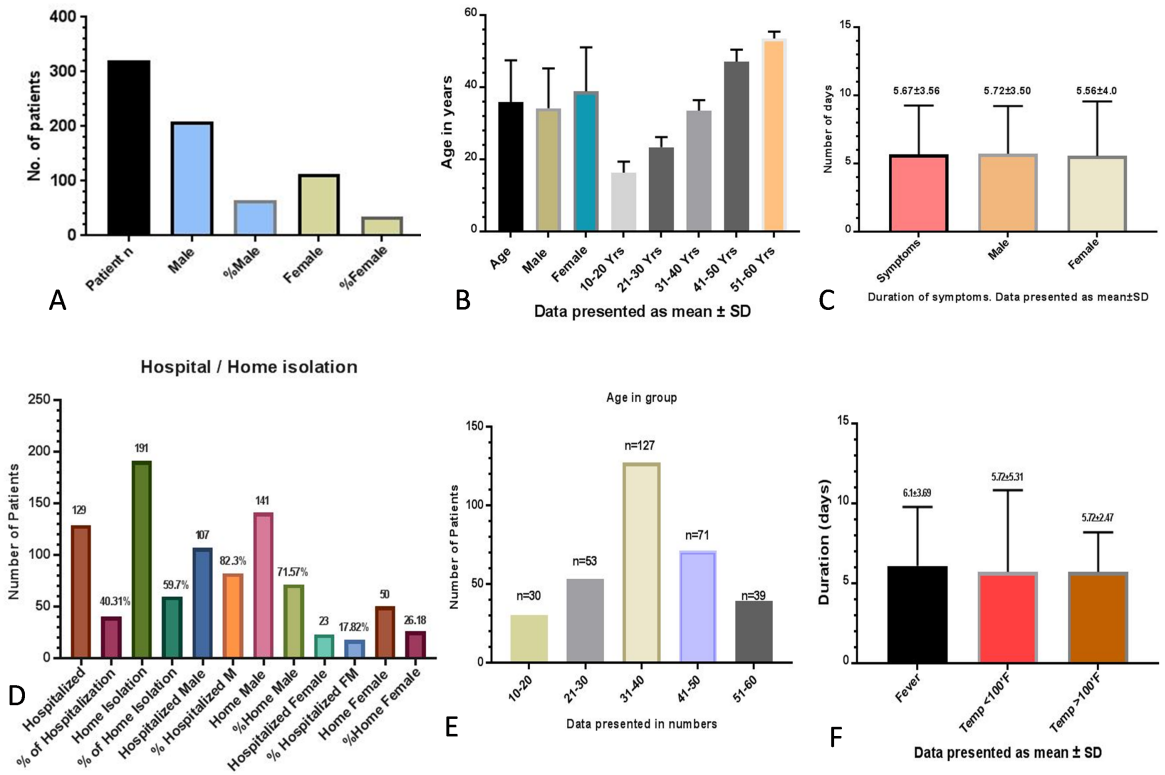

Figure 1: A- Number of total patients and gender difference of infected in number and percentage. B- Variation in age according to gender and age group. C- Duration of presenting symptoms in general and according to gender. D- Percentage of hospitalized and home isolation-treatment according to gender. E- Number of the COVID-19 patients according to age group. Note: 31 to 40 years is the highest and 10 to 20 years is the lowest affected group. F- Duration and grade of fever (<100^0F and >100^0F) as presenting symptom of COVID-19 disease.

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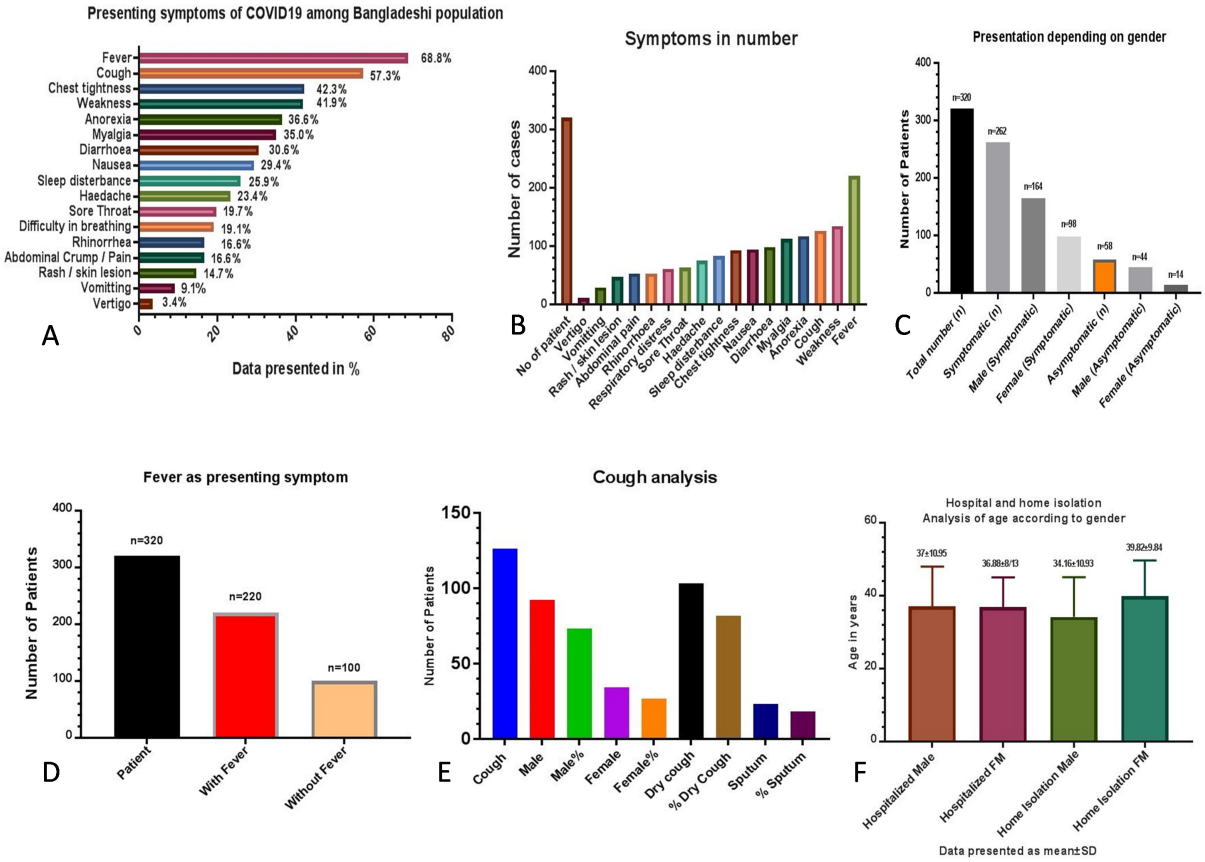

Figure 2: Presenting symptoms in percentage (A) and number (B) against the total of COVID-19 patients included in this study. C- Symptomatic and asymptomatic cases of COVID-19 patients in number. D- Presentation of the number of patients with or without fever against the total number of COVID-19 patients included in this study. E- Analysis of cough (Dry and with sputum) as a presenting symptom. F- Age variation according to the gender in the case of Hospitalized and home isolated patients.

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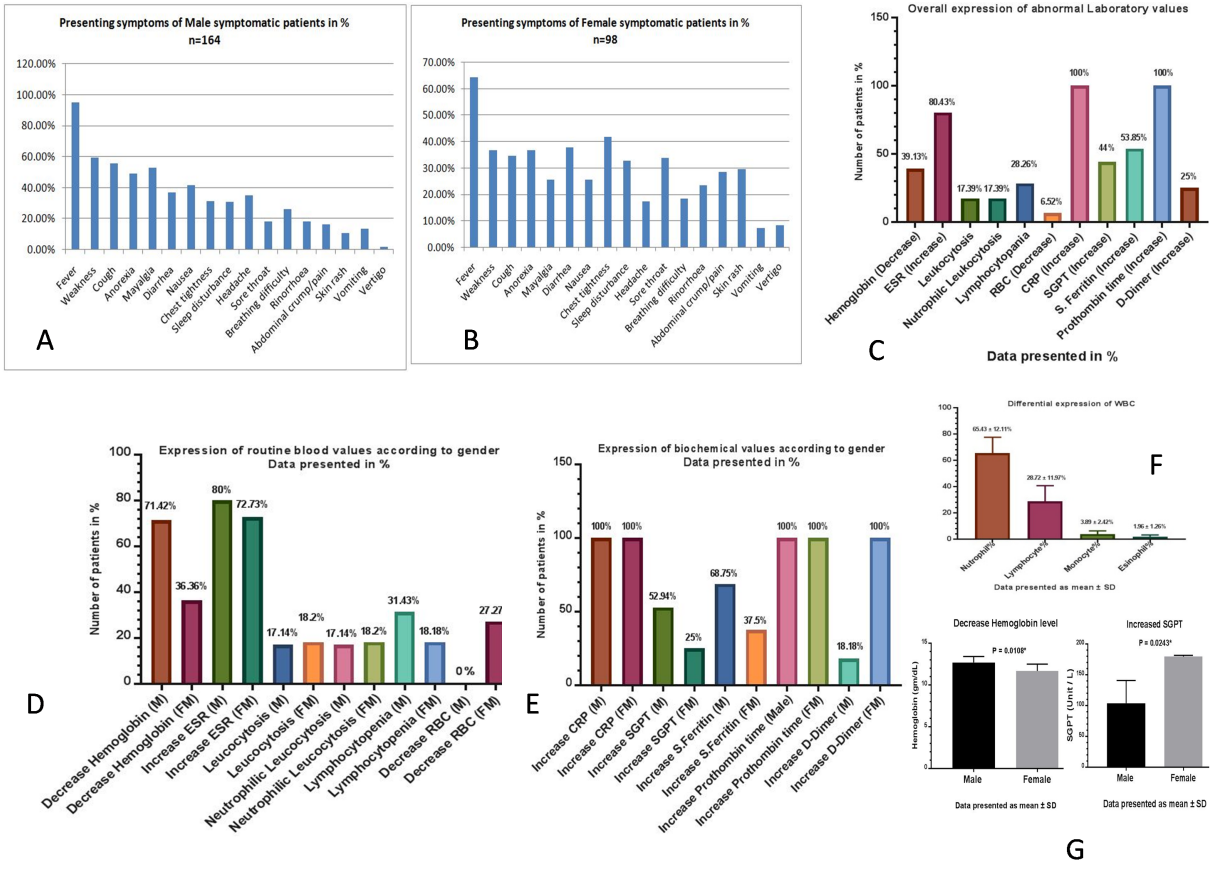

Figure 3: Presenting symptoms (in percentage) of male and female symptomatic patients (A & B). C- Differential count of WBC cells, presented as mean ± SD. D & E- Laboratory findings of the hematological changes (in percentage). F- Differential expression of WBC among the patients. G- Significant changes in decrease hemoglobin level and increased SGPT level in Male and Female patients.