ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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Examination of Clinical Features of COVID-19 Patients in a City Türkiye: A Cross-Sectional Study

Türkiye'de Bir İlde COVID-19 Hastalarının Klinik Özelliklerinin İncelenmesi: Kesitsel Bir Çalışma

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ABSTRACT Objective: The aim of this study was to examine the clinical characteristics of coronavirus disease-2019 (COVID-19) patients, such as their symptoms, laboratory and radiographic results. This is the first study to describe the clinical characteristics of COVID-19 patients in the Eastern Black Sea region of Türkiye. **Material and Methods:** This is a single-center cross-sectional study. The sample of the study consisted of 556 patients who received inpatient treatment in pandemic clinics and intensive care units with the diagnosis of laboratory-approved COVID-19 infection in a public hospital in XXX province between 20 March 2020-27 August 2020 and whose patient information was recorded in an electronic environment and in the patient files. **Results:** The mean age of 556 hospitalized patients with COVID-19 was 58.08±17.18 years, and the three most common symptoms were cough (44.4%), fever (20.5%), and fatigue (17.3%). 30.2% of the patients had lymphocytopenia, 67.8% had high C-reactive protein (CRP), 37.9% had high lactate dehydrogenase, and 30.5% had positive D-dimer levels. Symptomatic patients had greater comorbidities and higher CRP levels than asymptomatic patients. High CRP odds ratio 2.069, high ferritin odds ratio 3.605, and platelet odds ratio 0.995 were found to be associated with abnormal thoracic tomography in the logistic regression. **Conclusion:** This study provides basic data to show the importance of determining the clinical characteristics of COVID-19 patients in the Eastern Black Sea region of Türkiye. Results can be used as a knowledge base for future research and to implement procedures for improving safety perceptions among patients.

Keywords: COVID-19; SARS-CoV-2; Türkiye; clinical characteristics; outbreak

ÖZET Amaç: Bu çalışmanın amacı, koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] hastalarının epidemiyolojik ve klinik özelliklerini, laboratuvar bulgularını, radyolojik özelliklerini, tedavisini ve sonuçlarını tanımlamaktır. **Gereç ve Yöntemler:** Bu, tek merkezli kesitsel bir çalışmadır. Araştırmanın örneklemini, 20 Mart-27 Ağustos 2020 tarihleri arasında XXX ilindeki bir hastanede, en az bir numunesi COVID-19 pozitif çıkan, pandemi klinikleri ve yoğun bakım ünitelerinde yatarak tedavi alan ve hasta bilgilerinin elektronik ortamda ya da hasta dosyalarında kayıtlı olduğu 556 hasta oluşturdu. **Bulgular:** COVID-19 ile hastaneye yatırılan 556 hastanın yaş ortalaması 58,08±17,18 yıl olarak bulunmuştur. En yaygın 3 semptom öksürük (%44,4), ateş (%20,5) ve hâlsizlik (%17,3) olmuştur. Hastaların %30,2'sinde lenfositopeni, %67,8'inde yüksek C-reaktif protein (CRP), %37,9'unda yüksek laktat dehidrogenaz, yaklaşık olarak 1/3'ünde (%30,5) pozitif D-dimer seviyesi tespit edilmiştir. Semptomatik hastaların asemptomatik hastalara göre daha fazla komorbiditeye sahip olduğu bulunmuştur. Semptomatik hastaların CRP düzeyleri, asemptomatik hastalardan daha yüksek bulunmuştur. Yapılan lojistik regresyonda, yüksek CRP odds ratio 2,069, yüksek ferritin odds ratio 3,605 ve trombosit odds ratio 0,995 anormal toraks tomografisi ile ilişkili olduğu saptanmıştır. **Sonuç:** Bu çalışma, Türkiye'nin Doğu Karadeniz Bölgesi'ndeki COVID-19 enfeksiyonu olan hastaların klinik özelliklerin önemini gösteren temel veriler sunmaktadır. Bulgular, gelecekteki araştırmalarda bir bilgi tabanı olarak ve hastalar arasında güvenlik algılarını iyileştirmeye yönelik prosedürleri uygulamak için kullanılabilir.

Anahtar Kelimeler: COVID-19; SARS-CoV-2; Türkiye; klinik özellikler; salgın

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Coronavirus disease-2019 (COVID-19) is a viral respiratory disease caused by the bat-borne novel coronavirus 2019 (2019-nCoV). 2019-nCoV is a single-stranded RNA virus and has been named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) by the World Health Organization due to its similarity to the virus that causes severe acute respiratory syndrome.[1] COVID-19 emerged with cases of pneumonia of unknown etiology in Wuhan, Hubei, China in December 2019, and then clustered in wild animal market workers; subsequently findings consistent with fever, shortness of breath, and bilateral pulmonary infiltrates were detected radiologically. However, SARS-CoV-2 was detected by polymerase chain reaction (PCR) test in a sample stored from a patient with pneumonia in France at the end of 2019, and it was reported that the outbreak spread in France much earlier than is known worldwide.[2] COVID-19, which then spread all over the world in a short time and turned into a pandemic, has become a very urgent and serious public health problem.[3]

The number of individuals diagnosed with COVID-19 worldwide by February 5, 2021 is 104,370,550. The United States ranks first with the total number of COVID-19 cases and deaths in the world. On March 11, 2020, the first COVID-19 case was discovered in Türkiye, and the number of cases increased as in the world over time. There are 2,508,988 individuals diagnosed with COVID-19 in Türkiye.[3] There are also differences between the increase in the number of cases in favor of regions with a large population density in Türkiye.[4]

The impact of an outbreak depends on the number of people infected as well as the transmissibility of the infection and the spectrum of clinical severity. Current estimates for the incubation period of COVID-19, transmitted mainly through respiratory droplets, aerosols and conjunctiva, range from 2-14 days. Common symptoms of infection are fever, cough, and dyspnea. However, symptoms such as sore throat, diarrhea, headache, muscle/joint pain, back pain, fatigue, runny nose, and loss of smell and taste have also become specific for COVID-19. Pneumonia, severe acute respiratory tract infection, renal failure, and death may occur in severe cases. However, one may recover from the disease asymptomatically.[4]

Advanced age, presence of cardiovascular disease, hypertension, diabetes, chronic respiratory disease, and cancer are serious risk factors in the development of COVID-19 and cause the disease to progress more severely.[1,5,6] However, hypertension and diabetes have been shown to be common comorbidities associated with the rapid and aggressive development of the disease. It is noted that close monitoring of laboratory results in the follow-up of patients with a poor prognosis plays a crucial role in the recognition of patients who may have high mortality and the implementation of effective treatment in a timely manner.[7]

Laboratory results commonly encountered in the diagnosis of COVID-19 patients are thrombocytopenia, lymphocytopenia, leukopenia, C-reactive protein (CRP), liver function tests (alanine aminotransferase/aspartate transaminase), and elevated D-dimer.[8-12] Significant differences in laboratory results [(white blood cells, neutrophils, lymphocytes, CRP, creatine kinase MB (CKMB), inactive B-type natriuretic peptide (NT-PROBNP), prothrombin time (PT), fibrin degradation products (FDP), D-dimer, helper T cells ($CD4^+$) and cytotoxic T cells ($CD8^+$)] were observed in COVID-19 patients with and without critical health conditions in a retrospective study by Zheng et al.[12]

In humans, SARS-CoV-2 has been found to employ angiotensin-converting enzyme-2 as a cell receptor, resulting in lung interstitial damage and ultimately parenchymal alterations.[13] The preferred imaging test for COVID-19 pneumonia is a thoracic computed tomography (CT). Thorax imaging data, on the other hand, may not necessarily correspond to clinical symptoms. COVID-19 patients with a variable temporal course and illness severity may have different outcomes on thorax CT imaging. Typical CT results tend to be ground-glass opacity, consolidation, crazy-paving pattern, vascular enlargement, bronchial changes, bilateral, mostly multilobar, and peripheral in the middle and lower zones.[5,13]

Healthcare professionals in particular have to constantly keep themselves up-to-date in light of the rapidly increasing number of COVID-19 cases and the data updated every hour. However, information

on the clinical features of COVID-19 may still be limited despite such up-to-date data. The aim of the present study is to examine the clinical characteristics of COVID-19 patients, including their symptoms, laboratory, and radiological results, in a province in the Eastern Black Sea Region of Türkiye. This study is believed to contribute to controlling the outbreak, choosing the most effective ways of treatment and care, and shed light on ongoing COVID-19 research.

MATERIAL AND METHODS

STUDY DESIGN

This is a study conducted by the author of this paper that collected data from a single center. Strengthening the Reporting of Observational Studies in Epidemiology Statement Checklist (Supplementary File 1).

SAMPLE AND SETTING

The study was carried out in a province in the Eastern Black Sea Region where the increase in COVID-19 cases in a seen in Türkiye. The sample of the study consisted of 556 patients who were hospitalized with the diagnosis of COVID-19 in pandemic (COVID-19) clinics and intensive care units of hospital and whose patient information was recorded in an electronic environment and patient files between 20 March 2020-27 August 2020. The inclusion criteria were determined as follows: Being diagnosed with RT-PCR (real-time reverse transcription-polymerase chain reaction) laboratory-approved COVID-19, being 18 years of age and over, receiving inpatient treatment in pandemic clinics and intensive care units, and availability of patient information electronically in the Hospital Information Management System and in patient files in the archive.

DATA COLLECTION

Questionnaires

The research data were collected by filling out the "COVID-19 Patient Information Form."

COVID-19 Patient Information Form: The researchers created this form by reviewing the relevant literature.[9,11,14-17] The form included a total of 26 questions to determine the age, gender, and clinical characteristics (comorbidity, symptoms, laboratory results, and CT results) of COVID-19 patients.

Procedure

Data of COVID-19 patients in hospital were recorded in an electronic environment in Hospital Information Management System. In addition, a patient file belonging to each patient is kept in the hospital archive. The researchers obtained the data of the patients who met the research criteria between 20 March 2020-27 August 2020 by both using the Hospital Information Management System and by examining the patient files and recorded in the "COVID-19 Patient Information Form." While all data of 484 patients out of 556 in the study were obtained from the electronic data of the Hospital Information Management System, the missing data of 72 patients in this system were obtained from the patient files in the archive.

ETHICAL CONSIDERATIONS

Ministry permission required for COVID-19 scientific studies in Türkiye for the research was obtained from Republic of Türkiye Ministry of Health (2020-04-29T12_48_42); ethics committee permission was obtained from Gümüşhane University Scientific Research and Publication Ethics Committee (date: May 05, 2020, no: 2020/5); institutional permission was obtained from hospital (date: July 14, 2020 Issue E.2114). The principles of the Helsinki Declaration were followed at all stages of the study.

DATA ANALYSIS

The study data were analyzed using statistical software SPSS 22 (IBM Corp., Armonk, NY, USA). The statistical results of the evaluation were given as number and percentage for the categorical variables, the mean, standard deviation, minimum, and maximum for the numerical variables. One-Sample Kolmogorov Smirnov test was used to determine whether the groups had a normal distribution. A way to compare numerical variables between 2 independent groups was evaluated by the Mann-Whitney U test when the normal distribution condition was not met. The differences between the ratios of categorical variables in independent groups were analyzed using the

Supplementary File 1: STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***.

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	3-4
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	3-4
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5
Objectives	3	State specific objectives, including any prespecified hypotheses	6-7
Methods			
Study design	4	Present key elements of study design early in the paper	6-7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6-7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6-7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-7
Data sources/measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7
Bias	9	Describe any efforts to address potential sources of bias	8-9
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	7
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	8
		(b) Describe any methods used to examine subgroups and interactions	8
		(c) Explain how missing data were addressed	7
		(d) If applicable, describe analytical methods taking account of sampling strategy	8
		(e) Describe any sensitivity analyses	8
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	7
		(b) Give reasons for non-participation at each stage	7
		(c) Consider use of a flow diagram	9
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	8
		(b) Indicate number of participants with missing data for each variable of interest	7
Outcome data	15*	Report numbers of outcome events or summary measures	8-9
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9
		(b) Report category boundaries when continuous variables were categorized	8-9
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	8-9
Discussion			
Key results	18	Summarise key results with reference to study objectives	9-10-11-12
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	13
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	14
Generalisability	21	Discuss the generalisability (external validity) of the study results	14
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	14

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

chi-squared or Fisher's exact test. The predictors of COVID-19 compatible tomography were determined using logistic regression. There were odds ratios (OR) and 95 percent confidence intervals (CI) reported. The alpha significance level was set at $p<0.05$.

RESULTS

The mean age of the patients participating in the study was 58.08±17.18 years (min: 19, max: 96); 51.1% (n=284) were female, 82.4% (n=458) were symptomatic, and 50.2% (n=279) had comorbidity. Hypertension (30.8%) was the leading comorbidity. All patients (100.0%) were found to receive drug treatment for COVID-19 with the physician's request, and 66.3% had radiological results consistent with COVID-19 (Table 1).

TABLE 1: Age, gender, and clinical characteristics of COVID-19 patients.

Characteristics	Mean±SD	Minimum-maximum
Age (years)	58.08±17.18	19-96
Gender	n	%
Female	284	51.1
Male	272	48.9
COVID-19 symptoms		
Symptomatic	458	82.4
Asymptomatic	98	17.6
Comorbidity*	279	50.2
Hypertension	171	30.8
Diabetes mellitus	73	13.1
Respiratory system disease	42	7.6
Cardiovascular system diseases	28	5.0
Neurological system diseases	17	3.1
Other diseases**	33	5.9
Drug treatment with physician request***	556	100.0
Radiological findings	490	88.1
COVID-19 compliant	325	66.3
COVID-19 incompatible	165	33.7

*The number n is multiplied because there is more than one answer, **Muscular-skeletal system diseases, psychiatric diseases, urinary system diseases, metabolic system diseases, ***Vitamin C, oseltamivir, hydroxychloroquine, favipiravir, azithromycin; COVID-19: Coronavirus disease-2019.

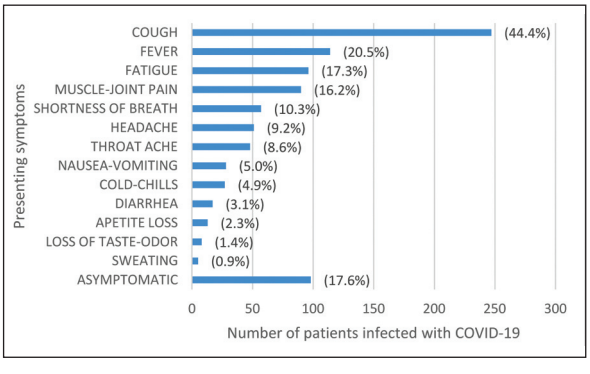

FIGURE 1: Symptoms of COVID-19 patients.
COVID-19: Coronavirus disease-2019.

The 3 most common symptoms were cough (44.4%), fever (20.5%), and fatigue (17.3%) (Figure 1).

The mean leukocyte value of the patients was 6.31±4.43 $10^3/mm^3$. 20.5% of patients had leukopenia whereas approximately one in three patients (33.0%) had a high neutrophil count. 30.2% of the patients had lymphocytopenia, 67.8% had high CRP, and about a third (30.5%) had positive D-dimer levels. The mean CK was 128.56±172.83 U/L. 37.9% of the patients had high lactate dehydrogenase (LDH) levels. The mean protrombin time level of the patients was 11.30±2.45, while 1.5% of patients had high troponin levels. 1.5% of patients had high troponin levels, while the mean troponin T value of the patients was 0.02±0.07. The mean ferritin level of the patients was 277.31±348.09, while 17.9% of patients had high ferritin levels. The mean procalcitonin was 0.39±4.77, and 3.2% of the patients had high procalcitonin levels (Table 2).

TABLE 2: Laboratory results of COVID-19 patients.

Parameters	Patients mean±SD
White cell countx$10^3/mm^3$, mean±SD (n=547)	6.31±4.43
White cell count <4×$10^3/mm^3$	112/547 (20.5%)
White cell count >11×$10^3/mm^3$	37/547 (6.8%)
Neutrophils count %,mean±SD (n=547)	64.46±13.33
Neutrophils count >%70	181/547 (33.0%)
Neutrophils count <%50	79/547 (14.4%)
Lymphocytes count %, mean±SD (n=547)	27.04±11.91
Lymphocytes count >%40	81/547 (14.8%)
Lymphocytes count <%20	165/547 (30.2%)
Plateletsx103/mm^3, mean±SD (n=547)	219.16±76.46
CRP mg/L, m±SD (n=544)	38.39±62.30
High CRP (>5 mg/L)	369/544 (67.8%)
D-dimer µg/L, mean±SD (n=532)	639.91±1093.71
Positive D-dimer (>500 µg/L)	162/532 (30.5%)
Creatine kinase (CK) U/L (n=536)	128.56±172.83
LDH (n=536)	241.00±87.28
High LDH	203/536 (37.9%)
Protrombin time (n=508)	11.30±2.45
Critical protrombin time >20 second	7/508 (1.4%)
Troponin T (n=520)	0.02±0.07
High troponin T (>0.014)	8/520 (1.5%)
Ferritine (n=442)	277.31±348.09
High ferritine (>400)	79/442 (17.9%)
Procalcitonin (n=440)	0.39±4.77
High procalcitonin (>0.5)	14/440 (3.2%)

COVID-19: Coronavirus disease-2019; SD: Standard deviation; CRP: C-reactive protein; LDH: Low density lipoprotein.

Comorbidities were observed to be higher in symptomatic patients than in asymptomatic ones (p=0.041). The mean CRP of symptomatic patients (39.92±61.20) was higher compared to the mean CRP of asymptomatic patients (30.75±67.38) (p=0.001). A high CRP level was identified in 70.4 percent of symptomatic patients and 54.9 percent of asymptomatic individuals, with a statistically significant difference between the 2 groups (p=0.004). However, there was no statistically significant difference between symptomatic and asymptomatic patients in terms of age, female gender, neutropenia, lymphocytopenia, D-dimer, and positive D-dimer values (p>0.05) (Table 3).

The mean age of patients whose thoracic CT was consistent with COVID-19 was 60.23±15.43, whereas the mean age of patients whose thoracic CT and involvement was not consistent with COVID-19 was 53.84±19.34 when the age COVID-19 patients were compared, with a statistically significant difference (p<0.001). Thoracic CT results of 75.9% of the patients with high CRP values were consistent with COVID-19 and statistically significant (p<0.001). While 42.4% of patients with thoracic CT consistent with COVID-19 had high LDH levels, 29.6% of patients whose involvement was not consistent with COVID-19 and who had normal thorax CT had high levels of LDH, with a statistically significant difference (p<0.001). In addition, high ferritin levels were observed in 24% of patients whose CT was consistent with COVID-19, while in patients whose involvement was not consistent with COVID-19 and who had normal thorax CT was 6.8%, with a statistically significant difference (p<0.001). However, the mean CK was found to be high (p=0.017), whereas the mean platelet count of patients whose thoracic CT was consistent with COVID-19 was found to be statistically significantly low (p<0.001) (Table 4).

High CRP (OR: 2.069) (95% CI 1.243-3.442, p=0.005), high ferritin (OR: 3.605) (95% CI 1.593-8.156, p=0.002), and platelet (PLT) (OR: 0.995) (95% CI 0.992-0.998, p=0.004) were found to be associated with abnormal thoracic CT as a result of bilateral logistic regression performed with determining factors such as age, presence of comorbidity, high CRP, high ferritin levels, PLT and CK values, and high LDH. The explanatory power of the model was found to be Nagelkerke R^2=0.16 (Table 5).

DISCUSSION

This is the first single-center study evaluating symptoms, laboratory, and radiological results describing the clinical characteristics of patients with COVID-19 infection in the Eastern Black Sea Region of Türkiye. Females were more affected by COVID-19 infection compared to males, and most of the patients were symptomatic in our study. Comorbidity, increased inflammatory markers were more common among symptomatic patients and were an indicator of abnormal thoracic radiography.

TABLE 3: Age, gender, comorbidity, and laboratory results of COVID-19 patients by their current symptoms.

	Symptomatic†	Asymptomatic†	p value
Age (mean±SD)	58.81±16.86	54.67±18.32	0.051*
Female	234/458 (51.1%)	50/98 (51.0%)	1.000**
Comorbidities	239/458 (52.2%)	40/98 (40.8%)	**0.041****
Neutropenia	67/455 (14.7%)	12/92 (13.0%)	0.798**
Lymphocytopenia	137/455 (30.1%)	28/92 (30.4%)	0.951**
CRP (n=544)	39.92±61.20	30.75±67.38	**0.001***
High CRP (>5 mg/L)	319/453 (70.4%)	50/91 (54.9%)	**0.004****
D-dimer	657.56±1138.25	552.09±837.30	0.383*
Positive D-dimer (>500 µg/L)	134/443 (30.2%)	28/89 (31.5%)	0.821**

*Mann-Whitney U test; **Chi-square test; †Column percentages were used; COVID-19: Coronavirus disease-2019; SD: Standard deviation; CRP: C-reactive protein.

TABLE 4: Comparison of age, gender, comorbidity, symptoms, and laboratory results of COVID-19 patients by thorax CT results (n=490).

	CT compatible with COVID-19†	Incompatible with COVID-19 and normal CT†	p value
Age (mean±SD)	60.23±15.43	53.84±19.34	<0.001*
Female	169/325 (52.0%)	84/165 (50.9%)	0.819**
Comorbidities	170/325 (52.3%)	83/165 (50.3%)	0.675**
Neutropenia	50/321 (15.6%)	19/163 (11.7%)	0.304**
Lymphocytopenia	98/321 (68.1%)	46/163 (28.2%)	0.675**
Cough	147/325 (45.2%)	74/165 (44.8%)	0.936**
Dyspnoea	38/325 (11.7%)	11/165 (6.7%)	0.111**
High fever	67/325 (20.6%)	35/165 (21.2%)	0.878**
High CRP (>5 mg/L)	243/320 (75.9%)	80/162 (49.4%)	<0.001**
Positive D-dimer (>500 µg/L)	90/316 (28.5%)	49/157 (31.2%)	0.539**
High LDH	134/316 (42.4%)	47/159 (29.6%)	<0.001**
High troponin	5/314 (1.6%)	2/149 (1.3%)	1.000***
High procalcitonin	8/264 (3.0%)	4/124 (3.2%)	1.000***
High ferritine	64/267 (24.0%)	9/132 (6.8%)	<0.001**
High protrombin time	5/308 (1.6%)	1/142 (0.7%)	0.670***
CK	136.95±177.53	111.35±136.74	0.017*
PLT	208.84±76.70	233.58±70.87	<0.001*

*Mann-Whitney U test; **Chi-square test; ***Fisher's exact test; †Column percentages were used; COVID-19: Coronavirus disease-2019; CT: Computed tomography; SD: Standard deviation; CRP: C-reactive protein; LDH: Lactate dehydrogenase.

In this study, the average age of the patients was 58,0817,18 years. The mean age of COVID-19 patients was 55.5±13.1 years in a single-center study conducted in Wuhan, China, which is similar to our study.[18] 51.1% of the participants were female and 48.9% were male, with no major differences between their percentages in our study. 51.7% of COVID-19 participants were female and 48.3% were male in a study conducted in Henan, China. These rates, as in our study, have similar percentages.[19] In addition, it is stated that the proportion of females in XXX province is higher compared to males, and XXX is the 3rd province in Türkiye with a median age population, considering the demographic structure of XXX province population in Türkiye.[20] Hypertension, diabetes mellitus, and respiratory system diseases were among the top 3 comorbidities contributing to the increase in the severity of COVID-19 in our study. Diabetes, respiratory diseases, and hypertension were found to be the most common comorbidities but in some studies, cardiovascular diseases, cerebrovascular diseases, and diabetes were the most common comorbidities in different studies on COVID-19.[16,18,19,21]

TABLE 5: Abnormal chest radiology determinants of COVID-19 patients (n=390).

Variable	Odds ratio (95% CI)	p value*
Age	1.012 (0.998-1.027)	0.103
Comorbidity	0.925 (0.570-1.500)	0.752
High CRP	2.069 (1.243-3.442)	0.005
High ferritin	3.605 (1.593-8.156)	0.002
PLT	0.995 (0.992-0.998)	0.004
CK	1.001 (0.999-1.003)	0.446
High LDH	0.849 (0.496-1.453)	0.550

*Logistic regression; Nagelkerke R2=0.161 enter method; COVID-19: Coronavirus disease-2019; CI: Confidence interval; CRP: C-reactive protein; PLT: Platelet; CK: Creatine kinase; LDH: Lactate dehydrogenase.

Similar studies are in line with our research results. COVID-19 is often more severe in elderly people and those who have underlying medical conditions. Being over 65, having cardiovascular disease, diabetes, hypertension, chronic lung disease, malignancies, chronic kidney disease, use of immunosuppressive or biological drugs, obesity, and smoking are all risk factors for severe illness and mortality in COVID-19 infection.[10]

Cough and fever were the first 2 most common symptoms among COVID-19 patients in our study. Similar studies are in line with our research result.[9,10,17,18-22] 17.6% of the participants were asymptomatic and all of them were using the medication recommended by the physician in our study. Asymptomatic patients are those who are admitted to the health institution for reasons such as pre-surgical and/or institutional screening and who have been diagnosed with COVID-19. Information about asymptomatic individuals is usually limited since they are not routinely tested. The proportion of asymptomatic individuals varies greatly according to the study environment and the populations studied among all confirmed cases found the number of asymptomatic cases to be approximately 17%, similar to our study.[15,23] Asymptomatic patients are very important groups in controlling the pandemic. The fact that all patients, including the asymptomatic patient group, used medication is an important marker in controlling social transmission in our study. The main basis of treatment was supportive since there was no specific medication defined to treat COVID-19 infection at the time of the study. Patients are treated in isolation and close contacts are quarantined in other countries as in Türkiye. In addition, non-critical patients are treated at home with close follow-up.[9,18] It is stated that both symptomatic and asymptomatic patients should be quarantined and tested to ensure that they take medication, and antibody tests should be performed on individuals who complete the quarantine without symptoms.[16,18,24,25]

In some of the COVID-19 patients, an excessive inflammatory response and consequently an increase in inflammatory markers are detected. Elevated CRP level is higher in symptomatic cases even though it is common in almost all COVID-19 cases.[24] The high CRP level in symptomatic patients supporting this result was higher compared to the high CRP level in the asymptomatic group in our study. Polat et al. found high CRP, D-dimer, ferritin, LDH values in terms of both genders in the retrospective screening of 90 patients with COVID-19 infection, who were followed up in the intensive care unit considered elevated LDH as a treatment predictor for hospitalization in a multicenter retrospective cohort study and found it to be significantly higher in most of the patients included in the study.[26,27] Similarly, in another study, elevated LDH and CRP were correlated with severe results.[16] CRP, positive D-dimer, CK, and LDH values were found to be high in our study, in line with the literature. This may be because patients already have a poor general condition, suffer from comorbidities, and belong to larger age groups. A high neutrophil leukocyte ratio depends on the increased neutrophil count and/or decreased lymphocyte count. Changes in these 2 parameters have been associated with poor prognosis and hospitalization in many studies observed a moderate increase in leukocyte count, an increase in neutrophils, and a decrease in lymphocytes as the severity of the disease increased in their meta-analysis study, and they thought the increase in neutrophils to be responsible for the increase in leukocyte count.[28] Approximately one in three patients had a high neutrophil value and a low lymphocyte value in our study, which supported this. Because the targeted invasion of SARS-CoV virus particles affects the cytoplasmic component of lymphocytes and causes their death, lymphocytopenia is a common symptom in critically ill patients with SARS-CoV infection.[14] More lymphocytopenia patients were observed in severe case groups in many studies on COVID-19.[9,17,25] This may be a characteristic of COVID-19 infection as reported in previous studies. The prevalence of lymphocytopenia in COVID-19 patients indicates a deterioration of the immune system during COVID-19 infection.[17]

One study found that comorbidities were among the predictors of the prognosis for COVID-19, while the presence of comorbidities was noteworthy in patients with multiple symptoms.[29] Symptomatic patients were found to have more comorbidities than asymptomatic patients in our study.

Thoracic CT plays an important role in the diagnosis of COVID-19 and in the evaluation of complications that may develop with treatment follow-up.[30] The mean age of patients whose thoracic CT results were consistent with COVID-19 was found to be higher compared to patients with normal thoracic CT, whose involvement was not consistent with COVID-19 in our study found that the mean age of the patients was high, similar to our study re-

sults.[24,25] High CRP results of patients whose thoracic CT results were consistent with COVID-19 were found to be higher compared to patients with normal thoracic CT, whose involvement was not consistent with COVID-19. A study of COVID-19 patients in Jordan found that 17% had lung infiltration, which was more common in symptomatic patients. In addition, the incidence of lung infiltration was found to be higher in patients with high CRP and those over 50 years of age.[31] It should be kept in mind that normal chest radiography does not rule out this disease, and clinically consistent cases should be evaluated with thoracic CT. CT was used as a screening method in the diagnosis of COVID-19 during the initial period when the outbreak was widespread in China, and then this criterion was changed. The early sensitivity of thoracic CT was determined as 98% in another study.[32] It should be noted, however, that in the early stages of the disease, thoracic CT may be normal. Thoracic CT is recommended to be used primarily in symptomatic and suspected cases of chest radiography and in cases where complications are thought to develop.[30]

The study's strength comes from the huge number of patients involved (556 cases). Clinical data were also collected for all types of cases admitted, including severe, mild, and asymptomatic cases.

LIMITATIONS

Our study had several important limitations. First, the study only included 556 participants who had COVID-19 confirmed. To reach a more comprehensive outcome connected to COVID-19, it would be preferable to include as many patients as possible from various cities in Türkiye and even from other countries. Second, all the basic data of the questions in the COVID-19 Patient Information Form created by the researchers could not be obtained from the electronic data of the Hospital Information Management System. Documentation of clinical symptoms was lacking in some cases whereas laboratory tests or both were lacking in others. Third, more detailed patient information, particularly on clinical outcomes, was not available at the time of analysis; however, the data in this study allowed the assessment of the age, gender, and clinical characteristics of COVID-19 infection in XXX province, Eastern Black Sea Region of Türkiye. Fourth, this was a follow-up study. This study's data allowed for a preliminary assessment of the clinical course and outcomes in critically ill patients with COVID-19 infection. However, further studies are still required. Finally, the regression model was less explanatory. This suggests that there may be different factors affecting abnormal chest radiology results in COVID-19 patients.

CONCLUSION

As a result of this study, which was conducted to describe the epidemiological and clinical features, laboratory findings, and radiological characteristics of patients with COVID-19 infection, it was determined that the average age of patients hospitalized with COVID-19 was 58 years, and the 3 most common symptoms were cough, fever, and malaise. Laboratory results revealed lymphocytopenia, high CRP, high LDH, positive D-dimer level. It was determined that symptomatic patients had more comorbidities and higher CRP levels than asymptomatic patients. In addition, it was concluded that chest CT uptake of patients compatible with COVID-19 was higher than patients with normal thoracic CT not compatible with COVID-19. The study presented basic data showing the important clinical features of patients with COVID-19 infection in a province of Türkiye. It is important because it can be used as a database in future research.

RELEVANCE TO CLINICAL PRACTICE

Due to the fact that the disease is very new and there is insufficient literature information of current guidelines on care are needed. Keeping records of collected follow up data enables clinics to participate in taking, implementing and evaluating control measures. In a global pandemic, active participation of nursing in clinical care, education and information sharing, public health and related policy regulations is essential. Nurses are health professionals fighting frontline with COVID-19 intervention and will be key players in ending the outbreak with appropriate support.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Aysun Kazak, Sevilay Hintistan;* ***Design:*** *Aysun Kazak, Sevilay Hintistan;* ***Control/Supervision:*** *Sevilay Hintistan;* ***Data Collection and/or Processing:*** *Emine Apaydın;* ***Analysis and/or Interpretation:*** *Aysun Kazak, Sevilay Hintistan, Çiğdem Kuralay;* ***Literature Review:*** *Aysun Kazak, Emine Apaydın, Çiğdem Kuralay, Zahide Akeren, Sevilay Hintistan;* ***Writing the Article:*** *Aysun Kazak, Emine Apaydın, Çiğdem Kuralay, Zahide Akeren, Sevilay Hintistan;* ***Critical Review:*** *Aysun Kazak, Emine Apaydın, Çiğdem Kuralay, Zahide Akeren, Sevilay Hintistan;* ***References and Fundings:*** *Aysun Kazak, Emine Apaydın, Çiğdem Kuralay, Zahide Akeren, Sevilay Hintistan.*

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