

RESEARCH ARTICLE

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COVID-19 Symptoms at First Admission to Hospital

ABSTRACT

Objective: The aim of this study is to profile the complaints in the disease application using a symptom survey in patients presenting with the suspicion of COVID-19 disease and to determine the disease-specific and descriptive characteristics of the initial symptoms in those who were diagnosed with the disease.

Methods: In this cross-sectional study, symptoms at first admission were questioned in adult patients who applied to the Covid Outpatient Clinic between 21 December 2020 - 22 January 2021. A total of 43 complaints were analyzed in PCR test positive and negative patients.

Results: 273 (62.0%) first application and 167 (38.0%) control applications were included in the study. The PCR test was positive in 16.5% of the first admissions. The most common complaints in the first admissions with positive PCR test were fatigue (73.0%), headache (64.9%), pain (32.2%), cough (56.8%), sore throat (51.4%), loss of appetite (45.9%) while 15.9% of them were asymptomatic. Odd's rates of significant complaints for PCR positivity were calculated as 2.607 for fever, 2.724 for anorexia, 2.051 for cough, 2.594 for loss of smell, and 2.243 for loss of strength.

Conclusions: COVID-19 is a disease that affects many organs and systems. Comparing the admission symptoms with the PCR test results will contribute to the recognition of the disease at the initial stage. Fever, anorexia, cough, loss of smell and loss of strength were found to be the distinguishing complaints of PCR positivity in our study.

Keywords: COVID-19, Symptoms, PCR Test.

COVID-19 Hastalarında Başvuru Şikayetleri

ÖZET

Amaç: Bu çalışmada COVID-19 hastalık şüphesi ile başvuran hastalarda semptom sorgulaması yapıp hastalık başvurusundaki şikayetlerin profilini çıkartmak, hastalık tanısı kesinleşenlerde başlangıç semptomlarının hastalığa özgü olma ve tanımlayıcı özelliklerini belirlemek amaçlanmıştır.

Gereç ve Yöntem: Kesitsel desendeki çalışmada 21 Aralık 2020 - 22 Ocak 2021 tarihleri arasında COVID-19 Polikliniğine başvuran yetişkin hastalarda başvuru şikayetleri sorgulanmıştır. Toplam 43 şikayet PCR testi pozitif ve negatif olanlarda analiz edilmiştir.

Bulgular: Çalışmaya 273 (%62,0) ilk başvuru, 167 (%38,0) kontrol başvurusu dahil edilmiştir. PCR testi ilk başvuruların %16,5'inde pozitif sonuçlanmıştır. PCR testi pozitif ilk başvurularda en sık belirtilen şikayetler halsizlik (%73,0), baş ağrısı (%64,9), ağrı (%32,2), öksürük (%56,8), boğaz ağrısı (%51,4), iştahsızlık (%45,9) olarak sıralanırken %15,9 hasta asemptomatikti. PCR pozitifliği için anlamlı şikayetlerin Odd's oranları ateş 2,607, iştahsızlık 2,724, öksürük 2,051, koku kaybı 2,594 ve güç kaybı 2,243 olarak hesaplandı.

Sonuç: COVID-19 hastalığı birçok organ ve sistemi etkileyen bir hastalıktır. PCR test sonucuna göre başvuru semptomlarını karşılaştırılması hastalığın başlangıç aşamasında tanınmasına katkı sağlayacaktır. Çalışmamızda PCR pozitifliği ayırt edici yakınmaların ateş, iştahsızlık, öksürük, koku duyusu kaybı ve güç kaybı olduğu saptanmıştır.

Anahtar Kelimeler: COVID-19, Şikayetler, PCR Testi.

INTRODUCTION

Although the clinical profiles of COVID-19 patients have been investigated, there are still many features that are not fully disclosed. New symptoms are reported regarding COVID-19 cases. Studies should continue to understand and ease the burden of COVID-19. Information about the virus such as immunity duration, symptoms and clinical course, transmission rate, number of infected population, mutation probability changes with new reports. This prevents the creation of a clear road map about fighting with the virus and the disease, and prevents the results of epidemic management, vaccine and drug studies from being completely predictable. Thousands of people who are considered to be caught and recovered from COVID-19 continue to live with symptoms that make it difficult to return to their daily life and previous performance even after months. Some patients continue to present with atypical symptoms and clinical course (1).

COVID-19 can be asymptomatic in some cases, and in some cases may result in severe respiratory symptoms, extrapulmonary symptoms and even death (2). COVID-19 symptoms are nonspecific and disease presentation can range from asymptomatic to severe disease. Most people infected with the COVID-19 virus have mild illness and recover. Approximately 40% of the virus-infected COVID-19 cases are asymptomatic, approximately 80% of the symptomatic cases have mild symptoms that require outpatient treatment, up to 15% of the cases require hospitalization and 5% of the cases require intensive care due to respiratory failure (3).

The most frequently reported signs and symptoms at the onset of COVID-19 include intermittent or persistent fever (77-98%), cough (46-82%), myalgia or fatigue (11-52%) and shortness of breath (3-31%) (4-5). Other less reported symptoms are sore throat, headache, sputum, and cough. Some patients have been reported to experience gastrointestinal symptoms such as diarrhea and nausea before fever and lower respiratory tract signs and symptoms develop (6). In addition, ageusia (taste disorders) and anosmia (disturbances in the sense of smell) have been reported (7). In a retrospective observational study examining 214 COVID-19 positive cases, central nervous system findings were found in 53 (24.8%) of the cases (8).

In our study, we aimed to make a comprehensive symptom questioning to profile the complaints in patients presenting with the suspicion of COVID-19 at the disease onset. Thus, clinical symptoms that were not questioned before will be questioned and possible symptoms that may have been overlooked will be identified. In addition, it was aimed to determine the disease-specific and descriptive characteristics of the initial symptoms in those whose diagnosis was confirmed.

MATERIAL AND METHODS

The study is a descriptive study in a cross-sectional design. The data collection phase of the study was carried out between December 21, 2020 - January 22, 2021. Adult patients (18 years of age and over) who applied to the COVID-19 Outpatient Clinic of Çanakkale Onsekiz Mart University Hospital were invited for the study, and the study was conducted on those who gave their consent.

Patients who gave consent to the study were asked to fill in the demographic data form and the COVID-19 survey of symptoms created for the study. In order to reduce personal contact, forms were prepared as online forms and their links were sent to the mobile phones of those included in the study. The data forms were filled out by the participants in the polyclinic waiting rooms, and researchers were constantly present in the environment to answer the questions of the participants. The time required for a participant to fill out the form is between 5 and 10 minutes and is below the possible waiting time before outpatient clinic interviews.

The demographic data form includes questions about the patients' age, gender, marital status, educational status, occupation, employment status, and smoking and alcohol habits. Information regarding the COVID-19 disease processes of the patients was also questioned with this form.

The COVID-19 application complaints form was created by the researchers by scanning the literature on this subject. It includes 7 general, 6 respiratory, 5 ear-nose-throat, 4 gastrointestinal, 3 urological, 14 neurological and 4 other symptoms and their descriptive features, which are reported to be frequent, rare or atypically.

The applications are separated as first application and control applications, for those who do not have a complaint, the reason for application is recorded. Repeated applications were not included in the study. Patients were divided into positive (+) and negative (-) according to PCR test results and analyzed accordingly.

After the data obtained digitalized and corrected, descriptive information were presented with mean and standard deviation for ordinal variables and the frequency and percentage for categorical variables. Patients' application complaints were analyzed in terms of demographic characteristics and PCR test results with Chi square and student's t tests selected according to variable characteristics. Odd's rates were calculated for complaints that made a significant difference according to the PCR result. Test constants and absolute p values for all analyzes, 95% confidence interval (CI) limits for Odd's ratios were presented, $p < 0.05$ was accepted as the general significance limit.

RESULTS

The study consisted of data of 440 participants. 232 (52.7%) of the participants are male, 208 (47.3%) are female, their average age is 40.8 ± 15.4 (minimum 18, maximum 88). Ages are not significantly different between genders ($t = 3.094$; $p = 0.210$). 262 of the participants (59.6%) were married, 147 (33.4%) were single, 31 (7.0%) were widowed or divorced. 6 of the participants (1.4%) are illiterate, 2 (0.5%) are literate, 91 (20.7%) are primary school graduates, 35 (8.0%) are secondary school graduates, 97 (22.0%) were high school graduates, 209 (47.5%) were higher education graduates. Of the participants, 273 (62.0%) are currently working, 91 (20.7%) are housewives, not working actively like students, 60 (13.6%) are retired and 16 (3.6%) was unemployed.

Of the participants, 183 (41.6%) never smoked, 91 (20.7%) quit, and 166 (37.7%) were still smoking active. Those who quit smoking had used an average of 12.4 ± 11.6 cigarettes a day for an average of 14.5 ± 9.2 years and had stopped using it for an average of 11.3 ± 10.7 years. Those who were currently smoking were smoking an average of 12.2 ± 8.8 cigarettes per day for an average of 12.6 ± 10.0 years. PCR test result showed a significant difference according to smoking status ($X^2 = 27.826$ $p < 0.001$). The Odd's rate for the positivity of the PCR test result

compared to non-smokers was 0.274 (95% CI 0.156-0.481) in smokers.

214 of the participants (48.6) had never consumed alcohol, 189 (43.0%) were using alcohol in social settings, and 36 (8.2%) were using alcohol regularly. Of those who reported using alcohol regularly, 17 (47.2%) were drinking alcohol 1-3 times a month, 18 (50.0%) 1-4 times a week, and 1 (2.8%) every day. PCR test result did not show a significant difference according to alcohol use status ($X^2 = 2.721$ $p = 0.257$).

Of the participants, 273 (62.0%) were first application and 167 (38.0%) were control interviews. 26 of the first applications (9.5%) consisted of those who remained in isolation at home after contact. Of the control interviews, 96 (57.5%) were post-treatment controls, and 22 (12.7%) were post-isolation controls. 44 (16.5%) of the 266 first applications to which the PCR test was applied, 69 (44.8%) of the 154 control interviews were positive.

205 (75.1%) of the first applications, 96 (57.5%) of the control applications consisted of patients with various complaints. The distribution of the reasons for the application of those whose applications do not depend on their complaints is given in Table 1.

Table 1. Reasons of the Covid-19 Polyclinic Admissions

	First admission	Control visits	Total
Symptomatic	205	96	301
After isolation/treatment	4	51	55
Patient contact	35	5	40
Requests for medical reasons	12	3	15
Official requests	7	6	13
Personal requests	6	3	9
Pre-employment	4	1	4
Before plasma donation	0	1	1
Before traveling abroad	0	1	1
Total	273	167	440

Among all applicants, there were 132 (31.4%) people who reported that they had no complaints, and their proportion was not significantly different between those who had PCR test results positive and negative ($X^2 = 0.013$ $p = 0.908$). When only the first admissions were evaluated, there were 65 (24.4%) asymptomatic people among 266 people who were tested, and the rate of asymptomatic patients was not significantly

different between PCR positive and negative ones ($X^2 = 2.076$ $p = 0.150$).

When only the first applications were evaluated, the most common complaints in patients with positive PCR test were weakness (27, 73.0%), headache (24, 64.9%), pain (23, 32.2%), cough (21, 56%, 8), sore throat (19, 51.4%), and anorexia (17, 45.9%) (Figure 1).

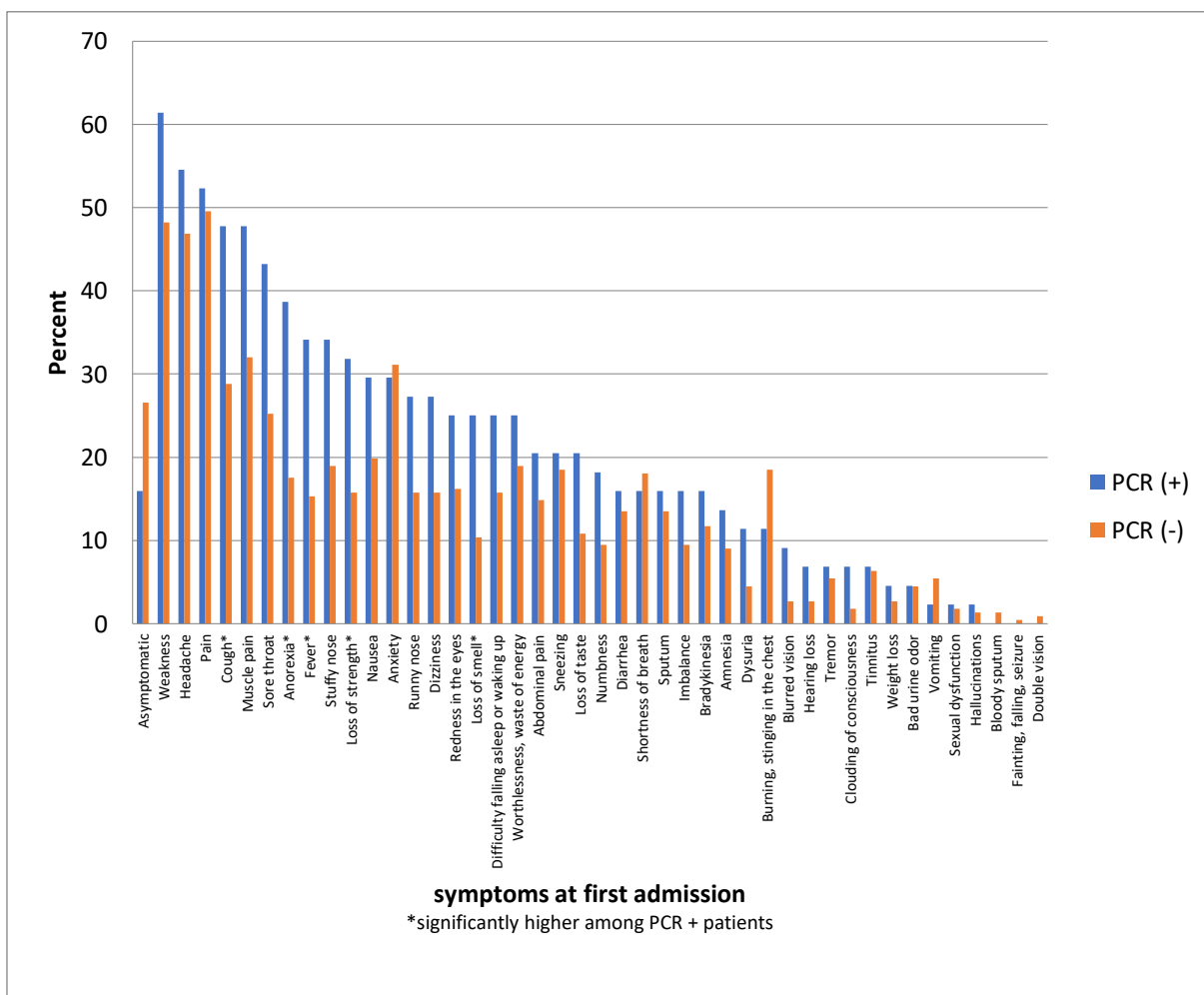


Figure 1. Incidence of symptoms at the first application

Complaints with a significant difference in the incidence between PCR test positive and negative ones were fever, anorexia, loss of sense of smell and loss of strength (Table 2). Odd's ratio for PCR positivity is 2.607 (95% CI 1.223-5.558) for fever complaints, 2.724 (95% CI 1.300-5.709) for complaints of anorexia, 2.051 (95% CI 0.996-4.222) for cough, and for loss of sense of smell. It was calculated as 2.594 (95% CI 1.129-5.956) and 2.243 (95% CI 1.047-4.808) for power loss.

DISCUSSION

COVID-19, which caused the largest known pandemic in the world, continues to be the most important topic of the world health agenda for about a year. Although it continues to be examined in all aspects, it cannot be said that the disease is adequately understood with all its features. Like similar acute respiratory diseases, COVID-19's application complaints are not distinctive. However, as information about the disease continues to be collected and examined, its unique characteristics will emerge and the recognition of the patients according to their application characteristics will increase. In our study, we aimed

to reveal the characteristics of the applications made to the COVID-19 outpatient clinic in our hospital and the specificity of the application complaints to the disease. 273 of 440 patients included in the study within a month period consisted of the first applications and 44 positive cases were detected according to the PCR test results.

People with COVID-19 usually develop signs and symptoms such as mild respiratory symptoms and fever, on average 5-6 days after infection. Most cases that were asymptomatic at the time of diagnosis have continued to develop the disease. Indeed, the rate of asymptomatic infections is uncertain, but appears to be relatively rare (9). The most common symptoms reported so far in the literature are fever, cough, fatigue, and shortness of breath, similar to other viral infections, including seasonal flu (10). In the first application cases examined in our study, asymptomatic ones were seen at a rate of 24.9%, and the PCR test positivity was 15.9% in the patients who applied without complaint, but this does not reflect the asymptomatic rates in the disease because it does not reflect a community segment.

Table 2. Symptoms at the First Admission According to PCR Test Results

	PCR (+) (n=44)	PCR (-) (n=222)	Statistical analysis
Asymptomatic	7 (%15.9)	59 (%26.1)	$\chi^2=2.076$ p=0.150
Weakness	27 (%73.0)	107 (%65.2)	$\chi^2=0.812$ p=0.368
Pain	23 (%62.2)	110 (%67.1)	$\chi^2=0.325$ p=0.568
Headache	24 (%64.9)	104 (%63.4)	$\chi^2=0.027$ p=0.868
Anorexia	17 (%45.9)	39 (%23.8)	$\chi^2=7.380$ p=0.007
Fever	15 (%40.5)	34 (%20.7)	$\chi^2=6.426$ p=0.011
Nausea	13 (%35.1)	44 (%26.8)	$\chi^2=1.025$ p=0.311
Redness in the eyes	11 (%29.7)	36 (%22.0)	$\chi^2=1.020$ p=0.313
Abdominal pain	9 (%24.3)	33 (%20.1)	$\chi^2=0.323$ p=0.570
Diarrhea	7 (%18.9)	30 (%18.3)	$\chi^2=0.008$ p=0.929
Dysuria	5 (%13.5)	10 (%6.1)	$\chi^2=2.404$ p=0.121
Bad urine odor	2 (%5.4)	10 (%6.1)	$\chi^2=0.026$ p=0.872
Weight loss	2 (%5.4)	6 (%3.7)	$\chi^2=0.241$ p=0.623
Vomiting	1 (%2.7)	12 (%7.3)	$\chi^2=1.063$ p=0.303
Cough	21 (%56.8)	64 (%39.0)	$\chi^2=3.890$ p=0.049
Sore throat	19 (%51.4)	56 (%34.1)	$\chi^2=3.820$ p=0.051
Stuffy nose	15 (%40.5)	42 (%25.6)	$\chi^2=3.313$ p=0.069
Runny nose	12 (%32.4)	35 (%21.3)	$\chi^2=2.073$ p=0.150
Sneeze	9 (%24.3)	41 (%25.0)	$\chi^2=0.007$ p=0.932
Shortness of breath	7 (%18.9)	40 (%24.4)	$\chi^2=0.504$ p=0.478
Sputum	7 (%18.9)	30 (%18.3)	$\chi^2=0.008$ p=0.929
Burning. stinging in the chest	5 (%13.5)	41 (%25.0)	$\chi^2=2.257$ p=0.133
Bloody sputum	0 (%0.0)	3 (%1.8)	$\chi^2=0.687$ p=0.407
Muscle pain	21 (%56.8)	71 (%43.3)	$\chi^2=2.205$ p=0.138
Loss of strength	14 (%37.8)	35 (%21.3)	$\chi^2=4.456$ p=0.035
Dizziness	12 (%32.4)	35 (%21.3)	$\chi^2=2.073$ p=0.150
Difficulty falling asleep or waking up	11 (%29.7)	35 (%21.3)	$\chi^2=1.204$ p=0.273
Loss of smell	11 (%29.7)	23 (%14.0)	$\chi^2=5.298$ p=0.021
Loss of taste	9 (%24.3)	24 (%14.6)	$\chi^2=2.066$ p=0.151
Numbness	8 (%21.6)	21 (%12.8)	$\chi^2=1.901$ p=0.168
Imbalance	7 (%18.9)	21 (%12.8)	$\chi^2=0.941$ p=0.332
Bradykinesia	7 (%18.9)	26 (%15.9)	$\chi^2=0.207$ p=0.649
Tremor	3 (%8.1)	12 (%7.3)	$\chi^2=0.027$ p=0.869
Hearing loss	3 (%8.1)	6 (3.7)	$\chi^2=1.397$ p=0.237
Clouding of consciousness	3 (%8.1)	4 (%2.4)	$\chi^2=2.886$ p=0.089
Fainting. falling. seizure	0 (%0.0)	1 (%0.6)	$\chi^2=0.227$ p=0.634
Blurred vision	4 (%10.8)	6 (%3.7)	$\chi^2=3.267$ p=0.071
Double vision	0 (%0.0)	2 (%1.2)	$\chi^2=0.456$ p=0.500
Tinnitus	3 (%8.1)	14 (%8.5)	$\chi^2=0.007$ p=0.933
Sexual dysfunction	1 (%2.7)	4 (%2.4)	$\chi^2=0.009$ p=0.926
Amnesia	6 (%16.2)	20 (%12.2)	$\chi^2=0.433$ p=0.510
Anxiety	13 (%35.1)	69 (%42.1)	$\chi^2=0.602$ p=0.438
Worthlessness. waste of energy	11 (%29.7)	42 (%25.6)	$\chi^2=0.264$ p=0.607
Hallucinations	1 (%2.7)	3 (%1.8)	$\chi^2=0.118$ p=0.731

The symptoms observed during the admission of COVID-19 patients vary. While the most common complaints at presentation are fever and cough, there are fewer gastrointestinal symptoms. Symptoms such as nasal congestion, increased secretion, sputum, weakness, sore throat,

hemoptysis, conjunctival hyperemia, nausea, vomiting, headache, abdominal pain, myalgia, diarrhea, rash, smell and taste disturbances may be observed in patients (11-12).

COVID-19 patients had fever (88%), dry cough (68%), fatigue (38%), sputum (33%),

shortness of breath (19%), sore throat (14%), headache (14%), myalgia or atypical symptoms like arthralgia (18%), tremors (11%), nausea or vomiting (5%), nasal congestion (5%), diarrhea (4%), hemoptysis (1%), and conjunctival congestion (1%) (13). While sore throat, fever, weakness, dry cough, nasal congestion, myalgia and headache are the most common symptoms in patients with mild clinical symptoms, dyspnea, fever, tachypnea, respiratory distress, hypoxemia, change of mental state, sepsis, multiorgan failure and death may occur (10). Headache and hemoptysis have been reported in relatively few patients (14).

In our study, the most common complaints in the first admission patients confirmed by the PCR test were fatigue, headache, pain, cough, sore throat, and anorexia, and were similar to those reported in other studies.

In COVID-19 disease, patients have upper respiratory tract infection signs and symptoms such as sore throat and rhinorrhea, as well as fatigue, fever, cough, dyspnea, myalgia (15). In one article, 44% of the patients developed headache, 41% fever, 39% myalgia, 38% cough symptoms. Patients experienced changes in smell and taste 4-5 days after the onset of the disease. Among the common symptoms, fever was the shortest (5.8 ± 8.6 days), taste and smell changes were the longest (17.2 ± 17.6 and 18.9 ± 19.7 days) (16). Anosmia and dysgeusia have also been reported in patients with COVID-19 infection.

In one study, 75% of the participants reported anosmia associated with loss or change in taste. In one confirmed case, anosmia was the only symptom (17). A cross-sectional survey study found that these symptoms are frequently reported in COVID-19 patients, and in most cases precede the onset of other symptoms (18). Odor and taste changes were observed at high rates, although not the most common symptoms in our series. It is among the complaints that show discrimination in COVID-19 patients whose loss of sense of smell is confirmed with an Odd's ratio of 2.594.

One large study, which received data from 1099 patients with laboratory-approved COVID-19 in China, showed that 44% of patients had a fever on admission, and 89% of patients developed a fever during their stay in the hospital. While the second most frequently reported symptom was cough (68%), fewer patients reported gastrointestinal symptoms such as nausea (5%) and diarrhea (4%) (11). Gastrointestinal symptoms were reported by 32% of patients, 89% defined their gastrointestinal complaints as mild. Loss of appetite (22%), nausea / vomiting (12%) and diarrhea (12%) were the most common gastrointestinal symptoms. None of the patients developed isolated gastrointestinal symptoms or gastrointestinal symptoms as the first sign of COVID-19 infection. It has shown estimates ranging from 5-50% in

publications on gastrointestinal symptomatology in COVID-19 (19).

In our study, in which the presence of symptoms before the diagnostic investigation was questioned through a list, patients reported the presence of various gastrointestinal complaints at relatively low rates.

In a study involving 180 patients with positive PCR reports, 112 patients had one or more symptoms related to ENT along with widespread COVID-19 disease. While fever (95%), fatigue (93%), shortness of breath (90%), cough (83%) were the most prominent symptoms of the patients at the time of admission, the common ENT symptoms were loss of smell (54%), decreased sense of taste (51%), hearing loss (50%), sore throat (47%) and tinnitus (39%). (20) In our study group, ENT-related symptoms such as tinnitus and hearing loss were among the rarely reported complaints.

While myalgia is a common clinical feature of COVID-19, other musculoskeletal symptoms during the pandemic have rarely been described as early complaints. However, there are recent reports of COVID-19 infection and a number of neuromuscular and rheumatological complications related to the course of the disease, including myositis, neuropathy, arthropathy, and soft tissue abnormalities (21). In our study, although myalgia was among the most common complaints of 56.8% in COVID-19 patients, no specific distinction was observed for the disease. Power loss observed less frequently (37.8%) is a distinctive complaint with a Odd's ratio of 2.243 for PCR test positivity.

In a systematic review of 16 studies including a total of 575 patients, 43 patients reported lower urinary tract symptoms at the onset of the disease, and 7 patients had worsening of previous symptoms. Scrotal discomfort and swelling, pain and redness, low flow priapism, bladder bleeding, and acute urinary retention were the urological disorders (22). Urological complaints questioned in our study group were rarely reported among COVID-19 patients.

In our study, general pain was reported as a complaint by one third of the patients, but these complaints were not specific to the disease. Like most viral infections where pain is a very common symptom, COVID-19 patients commonly show headaches, sore throats, myalgia, arthralgia, or peripheral neuralgias, and pain is considered to be an important symptom (23). Recognizing that COVID-19 triggers chronic pain and exacerbates pre-existing chronic pain will be of great importance for a better understanding of the disease (24).

COVID-19 does not limit itself to just a simple lower respiratory tract infection, but can cause serious systemic disease and affect the nervous system (25). Studies in the literature have confirmed that patients with COVID-19 may have symptoms such as hearing loss, tinnitus, and

dizziness, although they are mostly mild (26). In our study, a wide set of neurological symptoms were questioned and they reported their presence at various rates for patients, but neurological symptoms seen at a higher rate in patients confirmed by PCR are limited to loss of sense of smell and muscle weakness.

There are many suspicious cases for COVID-19, and methods such as PCR tests or CT scans are used for diagnosis. However, these can be replaced by an easily accessible and cost-free general clinical diagnosis. An attempt is made to develop a rapid screening method with common clinical diagnosis results on suspicious patients. However, the differences in the diagnostic research characteristics of the patients make it difficult for these efforts to yield results (27).

It is necessary to establish a reliable method for COVID-19 patients to distinguish patients who may have critical symptoms from other patients. In a study where the diagnostic power of disease symptoms was evaluated, 11442 of 51726 COVID-19 suspect case reports had sufficient symptom data for analysis, and 16% of them were tested positive for COVID-19 (28). Among the test positive cases, cough (73%), fever (60%), myalgia (44%), headache (40%) and fatigue (38%) were the most frequently reported symptoms. While general symptoms such as fever, myalgia, arthralgia, headache and fatigue as well as gastrointestinal symptoms (diarrhea and nausea or vomiting) at the time of notification were positively associated with COVID-19, chest pain, shortness of breath and abdominal pain symptoms were not associated with a positive test result. Among the general symptoms (fever, cough, and shortness of breath), only fever (alone or with other symptoms) was strongly associated with a positive test for COVID-19, with

an Odds ratio of 2.29 calculated. This rate was lower for cough, but not significant for shortness of breath. In the developed multivariate model, the presence of fever, myalgia, headache, fatigue or diarrhea was strongly associated with the result of the positive COVID-19 test result, the presence of cough or sore throat was found to be negatively correlated with diarrhea (28). In our study, presenting complaints were analyzed for the discriminatory characteristics for the disease, and fever, loss of appetite, cough, loss of sense of smell and loss of strength were found significant for PCR positivity.

Screening based on symptoms in travelers is considered defective or inadequate due to disease and patient characteristics (29). Symptom-based screening may not be an effective strategy for identifying people who should be tested for COVID-19 infection or detecting new cases of COVID-19 (30). However, as the disease is better known and the data increase, it will be possible to distinguish the disease through complaints at the initial stage.

CONCLUSION

COVID-19 disease is a disease that affects many organs and systems. Different rates are reported for application complaints in sources. Continuation of the studies evaluating the complaints at the time of application to compare the symptoms of patients according to PCR test will contribute to the recognition of the disease with initial complaints. In our study, the most common initial complaints in patients confirmed by the PCR test were listed as weakness, headache, pain, cough, sore throat, and anorexia, while PCR positivity was found to be fever, anorexia, cough, loss of sense of smell and loss of strength.

REFERENCES

1. WHO Coronavirus (COVID-19) Dashboard [Internet]. Geneva: WHO; 8 May 2021. [cited: 2021 May 8]. Available from: <https://covid19.who.int/>
2. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A Novel Coronavirus from patients with pneumonia in China, 2019. *N Engl J Med.* 2020;382(8):727-33. doi:10.1056/NEJMoa2001017.
3. World Health Organization: Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) [Internet]. Geneva: WHO; 16-24 February 2020. [cited 2021 Feb 27]. Available from: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-onCOVID-19-final-report.pdf>
4. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel corona virus in Wuhan, China. *The Lancet.* 2020;395(10223):497-506. doi:10.1016/S0140-6736(20)30183-5.
5. Hoehl S, Rabenau H, Berger A, Kortenbusch M, Cinatl J, Bojkova D, et al. Evidence of SARS CoV-2 infection in returning travelers from Wuhan, China. *N Engl J Med.* 2020;382(13):1278-80. doi:10.1056/NEJMc2001899.
6. Chen W, Lan Y, Yuan X, Deng X, Li Y, Cai X, et al. Detectable 2019-nCoV viral RNA in blood is a strong indicator for the further clinical severity. *Emerg Microbes Infect.* 2020;9(1):469-73. doi:10.1080/22221751.2020.1732837.
7. Vaira LA, Salzano G, Fois AG, Piombino P, De Riu G. Potential pathogenesis of ageusia and anosmia in COVID-19 patients. *Int Forum Allergy Rhinol.* 2020;10(9):1103-4. doi:10.1002/alr.22593
8. Huarcaya-Victoria J, Herrera D, Castillo C. Psychosis in a patient with anxiety related to COVID-19: A case report. *Psychiatry Res.* 2020;289:113052. doi:10.1016/j.psychres.2020.113052

9. Quer G, Radin JM, Gadaleta M, Baca-Motes K, Ariniello L, Ramos E, et al. Wearable sensor data and self-reported symptoms for COVID-19 detection. *Nature Medicine*. 2021;27:73-7. doi: 10.1038/s41591-020-1123-x
10. Chams N, Chams S, Badran R, Shams A, Araji A, Raad M, et al. COVID-19: A Multidisciplinary Review. *Front Public Health*. 2020;8:383. doi: 10.3389/fpubh.2020.00383
11. Guan WJ, Ni ZY, Hu Y, Liang W, Ou C, He J, et al. Clinical characteristics of Coronavirus disease 2019 in China. *N Engl J Med*. 2020;382:1708-20. doi:10.1056/NEJMoa2002032
12. Elshafeey F, Magdi R, Hindi N, Elshebiny M, Farrag N, Mahdy S, et al. A systematic scoping review of COVID-19 during pregnancy and child birth. *Int J Gynaecol Obstet*. 2020;150(1):47-52. doi: 10.1002/ijgo.13182
13. Thomas P, Baldwin C, Bissett B, Boden I, Gosselink R, Granger CL, et al. Physiotherapy management for COVID-19 in acute hospital setting: clinical practice recommendations. *J Physiother*. 2020;66(2):73-82. doi: 10.1016/j.jphys.2020.03.011
14. Chan JF, Yuan S, Kok KH, To KKW, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020;395(10223):514-23. doi:10.1016/S0140-6736(20)30154-9.
15. Chakraborty C, Sharma AR, Sharma G, Bhattacharya B, Lee SS. SARS-CoV-2 causing pneumonia-associated respiratory disorder (COVID-19):diagnostic and proposed therapeutic options. *Eur Rev Med Pharmacol Sci*. 2020;24(7): 4016-26. doi:10.26355/eurrev_202004_20871
16. Klein H, Asseo K, Karni N, Benjamini Y, Nir-Paz R, Muszkat M, et al. Onset, duration and unresolved symptoms, including smell and taste changes, in mild COVID-19 infections. A cohort study in Israeli patients. *Clin Microbiol Infect*. 2021;27(5):769-74. doi:10.1016/j.cmi.2021.02.008.
17. Burak KW, Law S, Rice C, Hu J, Fung CI, Woo AKH, et al. COVID-19 outbreak among physicians at a Canadian curling bonspiel: a descriptive observational study. *CMAJ Open*. 2021; 9(1): E87-E95. doi:10.9778/cmajo.20200115.
18. Giacomelli A, Pezzati L, Conti F, Bernacchia D, Siano M, Oreni L, et al. Self-reported olfactory and taste disorders in patients with severe acute respiratory Coronavirus 2 infection: a cross sectional study. *Clin Infect Dis*. 2020;71(15):889-90. doi: 10.1093/cid/ciaa330.
19. Cholankeril G, Podboy A, Aivaliotis VI, Tarlow B, Pham EA, Spencer SP, et al. High prevalence of concurrent gastrointestinal manifestations in patients with severe acute respiratory syndrome Coronavirus 2:early experience from California. *Gastroenterology*. 2020;159(2):775-7. doi:10.1053/j.gastro.2020.04.008.
20. Savtale S, Hippargekar P, Bhise S, Kothule S. Prevalence of otorhinolaryngological symptoms in Covid 19 patients. *Indian J Otolaryngol Head Neck Surg*. 2021 Feb 8;1-7. [Online ahead of print]. doi:10.1007/s12070-021-02410-5.
21. Ramani SL, Samet J, Franz CK, Hsieh C, Nguyen CV, Horbinski C, et al. Musculoskeletal involvement of COVID-19: review of imaging. *Skeletal Radiol*. 2021 Feb 18;1-11. [Online ahead of print]. doi:10.1007/s00256-021-03734-7.
22. Creta M, Sagnelli C, Celentano G, Napolitano I, La Rocca R, Capece M, et al. SARS-CoV-2 infection affects the lower urinary tract and male genital system: a systematic review. *J Med Virol*. 2021;93(5):3133-42. doi: 10.1002/jmv.26883.
23. Drozdal S, Rosik J, Lechowicz K, Machaj F, Szostak B, Majewski P, et al. COVID-19: pain management in patients with SARS-CoV-2 infection molecular mechanisms, challenges, and perspectives. *Brain Sci*. 2020;10(7):465. doi:10.3390/brainsci10070465.
24. Alonso-Matielo H, Oliveira VRS, Oliveira VT, Dale CS. Pain in Covid Era. *Front Physiol*. 2021;12:624154. doi:10.3389/fphys.2021.624154
25. Karadeli HH, Keskin N. Covid-19 ve Nörolojik Belirtiler. *Med Res Rep*. 2020;3(Supp 1):51-58
26. Soylemez E, Ertugrul S. Covid-19 ve odyo-vestibüler sistem: sistematik derleme. *Selçuk Sağlık Dergisi*. 2020;1 (Covid-19 Özel Sayı):33-40
27. Guo G, Liu Z, Zhao S, Guo L, Liu T. Eliminating indefiniteness of clinical spectrum for better screening COVID-19. *IEEE J Biomed Health Inform*. 2021 Feb 18. [Online ahead of print]. doi:10.1109/JBHI.2021.3060035.
28. Duque MP, Luccacioni H, Costa C, Marques R, Antunes D, Hansen L, et al. COVID-19 symptoms: a case-control study, Portugal, March-April 2020. *Epidemiology Infect*. 2021 Feb 19;149:e54. doi: 10.1017/S095026882100042X.
29. Gostic K, Gomez ACR, Mummah RO, Kucharski AJ, Lloyd-Smith JO. Estimated effectiveness of symptom and risk screening to prevent the spread of COVID-19. *Elife*. 2020;9:e55570. doi: 10.7554/eLife.55570
30. Callahan A, Steinberg E, Fries JA, Gombar S, Patel B, Corbin CK, et al. Estimating the efficacy of symptom-based screening for COVID-19. *NPJ Digit Med*. 2020;3:95. doi:10.1038/s41746-020-0300-0.