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ARAŞTIRMA / RESEARCH

Common and atypical otorhinolaryngological findings of Covid-19

COVID-19'un sık görülen ve atipik kulak burun boğaz bulguları

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Abstract

Purpose: Several atypical presentations of COVID-19 like anosmia, conjuctivitis, and gastrointestinal findings are seen in the literature. The purpose of this study was to investigate the common and atypical symptoms of COVID-19 among the patients admitted to the otorhinolaryngology (ENT) outpatient clinic.

Materials and Methods: This case series was conducted with 49 patients who applied to hospital between April 1, 2020 and April 30, 2020. Common and atypical otolaryngological findings were recorded. Sociodemographic findings and blood parameters were also evaluated.

Results: Of the patients, 59.18% were aged 40 and over, 46.94% were of the A blood group, 55.10% were male and 24.49% were smokers, 51.02% had a chronic disease. Among typical symptoms; fever (71.43%), a dry cough (46.94%), shortness of breath (42.86%) was seen. Diarrhea (48.98%), runny nose (51.02%), nasal congestion (42.85%), sore throat (22.44%), headaches (32.65%), 18.36% olfactory disorder, 26.53% gustatory disturbance were noted. Olfactory and gustatory disturbances are found to be related to good prognosis and mild clinical course. The difference between Hg and D–dimer levels of the female and male patients were found to be statistically significant. The D-dimer levels determined in the present study were higher than those reported in the literature.

Conclusion: While COVID-19 present with common symptoms, sometimes atypical symptoms can be the only finding during initial application to the hospital. Olfactory and gustatory disturbances point to the effects of COVID-19 on neurons. Neuronal effects like olfactory and gustatory disturbances should be closely monitored in COVID-19 patients in long term.

Keywords:. COVID-19, Otorhinolaryngology, Olfactory disorder, taste disorder, neuron.

Öz

Amaç: Literatürde, koku alma bozukluğu, konjuktivit, gastrointestinal bulgular vs gibi COVID-19'un birçok atipik sunumu mevcuttur. Bu çalışmanın amacı; acil ve Kulak Burun Boğaz (KBB) polikliniğine başvuran hastalarda COVID-19'un sık ve atipik semptomlarını araştırmaktır.

Gereç ve Yöntem: Bu vaka serisi 1 Nisan 2020 ile 30 Nisan 2020 tarihleri arasında hastaneye başvuran 49 hasta ile gerçekleştirilmiştir. Sık ve atipik görülen KBB bulguları kaydedildi. Sosyodemografik bulgular ve kan parametreleri değerlendirildi.

Bulgular: Hastaların %59.2'i 40 yaş ve üzeri, %55.1'i erkek, %46.9'u A kan grubu, %24.5'i sigara içen, %51 'inin kronik hastalığı vardı. Ortak bulgular arasında; ateş %71.4, kuru öksürük %46.9, nefes darlığı %42.9, burun akıntısı %51, burun tıkanıklığı %42.9 görüldü. Boğaz ağrısı %22.4, baş ağrısı %32.7, koku alma bozukluğu %18.4, tat alma bozukluğu %26.5 ve ishal %49 olarak kaydedildi. Koku ve tat alma bozuklukları iyi prognoz ve hafif klinik seyir göstermektedir. Kadın ve erkek hastaların hemoglobin ve D-dimer düzeyleri arasındaki fark istatistiksel olarak anlamlı bulundu. Bu çalışmada belirlenen D-dimer seviyeleri literatürde bildirilenlerden anlamlı derecede yüksekti.

Sonuç: COVID-19 ortak semptomlarla ortaya çıkarken, bazen atipik semptomlar hastaneye başvuru da tek bulgu olabilir. Koku ve tat bozuklukları gibi bulgular COVID-19'un sinirler üzerine etkilerine dikkat çekmektedir. Koku tat bozuklukları gibi nöronal etkiler COVID -19 hastalarında uzun dönemde yakından takip edilmelidir.

Anahtar kelimeler: COVID-19, KBB bulguları, koku bozukluğu, tat bozukluğu, nöron.

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INTRODUCTION

In December 2019, pneumonia cases of unknown etiology were reported by the World Health Organization (WHO) in the Wuhan province of the state of Hubei, China[1]. Subsequently, on January 7, 2020, it was stated by WHO that the actual cause of these cases was a new Corona virus 2019 (2019-nCoV), which had not been previously detected in humans and was aptly named COVID-19[2,3]. This pathogen, which causes severe acute respiratory syndrome, was named as SARS-CoV-2 by the Chinese Center for Disease Control and Prevention. On January 30, 2020, WHO declared SARS-CoV-2 a public health emergency of international concern (PHEIC)[4].

The clinical characteristics of the patients infected with SARS-CoV-2 include a dry cough, fever and difficulty in breathing. Gastrointestinal complaints, i.e. nausea and vomiting, may be less prevalent among the patients[5]. In the literature, there are several studies on atypical symptoms such as anosmia and ageusia, which have been recently observed with COVID-19[6]. In addition, neurological findings such as headaches and pains in the legs and back, cardiovascular symptoms such as heart palpitations and chest pains, and ophthalmic symptoms such as conjunctivitis are other examples of atypical presentations[7,8].

Yan et al. (2020) reported that there had been a significant increase in new onset anosmia since the COVID-19 outbreak. However, it remains unclear if these findings are related to COVID-19 infections that require hospitalization, any mild COVID-19 infection, or simply due to the more widespread recognition of post-viral anosmia. Insight into the timing and association of smell/taste loss and COVID-19 is critical as patients with acute anosmia may be otherwise asymptomatic carriers of the disease and may unwittingly facilitate the spread of it[9].

This study aimed to investigate the otolaryngological symptoms of COVID-19 among patients who were admitted to the otorhinolaryngology (ENT) and emergency outpatient clinic of Mardin Kızıltepe District State Hospital, diagnosed with COVID-19 with common or atypical complaints and monitored in the clinic wards. Bearing atypical symptoms like anosmia, taste disturbance etc., physicians should be alert about new presentations of COVID-19.

MATERIALS AND METHODS

This case series was conducted with 49 patients who were admitted to Mardin Kızıltepe District State Hospital between April 1, 2020 and April 30, 2020. Two of these patients were admitted to the otolaryngology outpatient clinic with the complaint of not being able to smell and taste another two with the same complaints were admitted to the emergency ward and one was admitted to the otolaryngology outpatient clinic with a fever, chills, muscle pain and a pre-diagnosis of cryptic tonsillitis after a consultation in a different department.

These patients were determined as COVID-19 positive with the rapid test and polymerase chain reaction test (PCR). Apart from 5 patients with atypical clinical symptoms, the rest of the patients (n=44) had typical symptoms from various departments especially the emergency department and they had rapid test positive results and were admitted to COVID-19 hospital ward. In addition, patients with missing data and those who were unwilling to participate in the study were not included in the study. The PCR tests result in the study hospital were concluded within 1 or 2 days. In addition, patients with first PCR negative test results were excluded from the study.

The patients were informed about the study and their consent was obtained. This study was conducted in accordance with the Ethical principles stated in the Declaration of Helsinki, and the study was approved by the Mardin Artuklu University Institutional Ethical Review Board (Date: 22.07.2020 and numbered 2020/6-9). In order to conduct the study and collect the data, institutional permission was obtained from the hospital administration and the permission of the ethics committee of the Provincial Health Directorate and Mardin Artuklu University was obtained

Procedure

In this study, the group of patients, who were admitted to hospital due to positive rapid test or PCR, had bilateral lung involvement in tomography as well as having parameters including ferritin, high D-dimer levels, CRP and sedimentation, aspartate aminotransferase (ALT), aspartate aminotransferase (AST), creatine kinase or any underlying comorbidities that were deteriorating the course of COVID-19 such as diabetes, hypertension, immune system diseases, asthma etc. The rapid-testing or PCR

results, or clinical findings and health history of some of these patients were compatible with COVID-19 at first admission. Also, the second PCR test results of these patients were re-evaluated to confirm their condition during hospitalization.

All of the patients in this study (n=49) were definitively diagnosed with COVID-19 by PCR or rapid test and evaluated in terms of age, gender, blood group, marital status, occupation, smoking status, presence of chronic diseases, clinical outcomes, duration of hospital stay, BMI (Body Mass Index), appetite, sleeping status, nasal congestion, runny nose, earache, tinnitus, hearing loss, sore throat, headache, vertigo/dizziness, anosmia and ageusia either by hospital records or patient interview.

A Visual Analog Scale (VAS) was used to evaluate the changes in patient interviews, and patients were asked to indicate their changes on the scale. According to the VAS prepared in the range of 0-100 mm, 25 points and less were regarded as very bad (4>Hours), 26-75 points as moderate (4-6 Hours) and 76 points and above as normal (7-12 Hours). The VAS included a 100mm long 0–10 scale in which "0" corresponded to the least and "100" to the most.

The olfactory, gustatory and appetite status of the patients were measured separately when they were initially hospitalized. The 100 mm VAS was used to evaluate the olfactory, gustatory and appetite status of the patients. The patients were asked to indicate their appetite, taste and smell changes on the VAS. In addition, all the patients were made to smell coffee, rose and lemon scented cologne, and to taste salt, sugar, red pepper and lemon to obtain more objective results.

Statistical analysis

The data were obtained from the electronic medical records of the hospital using data collection forms. The data collection form consisted of epidemiological, clinical, laboratory and radiological findings and questions related to treatment procedures and outcomes. The categorical variables were described as frequency and percentages and the continuous variables were described using mean, median, and interquartile range (IQR) values. The means for the continuous variables were compared using independent group t tests in the case of normal distribution; in the opposite cases Mann-Whitney test was used. The proportions for the categorical variables were compared using the $\chi 2$ test, although when the data were limited the Fisher exact test was used. All statistical analyses were performed using SPSS (Statistical Package for the Social Sciences) version 24.0 software (SPSS Inc). For unadjusted comparisons, a 2-sided α of less than 0.05 was considered statistically significant. The analyses were not adjusted for multiple comparisons and, given the potential for type I error. The findings should be interpreted as exploratory and descriptive. $P<0.05$ was considered significant in the data analysis.

RESULTS

The mean age of the patients in the study was 43.25 ± 18.28 and the vast majorities were 39 years old or younger (40.82%). The lower age limit of the patients was 19 while the upper age limit was 87. The number of the patients with A blood group were higher than those with other blood groups. 55.10% of the patients were male and 44.90% were female. Most of the female patients were housewives, while most of the male patients were civil servants or agricultural workers. 24.49% of the patients were smokers. 48.98% of the patients did not have any kind of disease, while cardiovascular and cerebrovascular diseases were diagnosed in 26.53% of the patients. The average length of hospital stay was 6.68 ± 3.37 days. No patients stayed in hospital for less than five days. When the BMI of the patients were examined anthropometrically, 40.82% of the BMI values were found to be above 30 kg/cm2 (Table 1).

The clinical conditions and disease symptoms of the patients included in the study are presented in Table 2. The majority of the patients had a high fever (71.43%) and dry cough (46.94%). In addition, loss of appetite (38.78%), fear (59.18%), anxiety (18.37%) was observed. Sleep disorders were determined among the patients after recovery as it was determined that 26.53% of the patients slept for 4 hours or less. The ear, nose and throat (ENT) findings of the patients (n=49) included in the study are presented in Table 3. Nasal discharge was the most common ENT finding among the patients (n=17, 51.02%), followed by headache (n: 16, 32.65%), sore throat (n=11, 22.44%) and nasal congestion (n: 11, 42.85%), respectively. It was found that the olfactory (n=9, 18.36%) and gustatory senses (n=13, 26.53%) of some patients decreased. And the distribution of the biochemical parameters of the patients according to gender were presented in Table 4. An example is a 30-year-old woman with the insidious complaint of anosmia and agnosia for two

days suffering from a mild sore throat and mild breathing difficulty with COVID-19 was confirmed by positive rapid test in ENT outpatient clinics. Also in COVID-19 ward, there were three patients with insidious onset of anosmia and agnosia with COVID-19 diagnosis.

Table 1. Demographics, baseline characteristics and clinical outcomes of the patients

Variables		**N**	**%**
Age Groups	≤39	20	40.82
	40–49	10	20.41
	50–59	11	22.45
	60–69	3	6.12
	≥70	5	10.20
Blood Groups	A	23	46.94
	B	16	32.65
	AB	3	6.12
	0	7	14.29
Gender	Female	22	44.90
	Male	27	55.10
Marital Status	Married	37	75.51
	Single	12	24.49
Occupation	Agricultural Worker	8	16.33
	Self-Employed	4	8.16
	Unemployed	2	4.08
	Housewife	22	44.90
	Civil servant	11	22.45
	Other	3	6.12
Smoking status	Yes	12	24.49
	No	32	65.31
	Quit smoking	5	10.20
Chronic ~~Medical~~ Diseases	Cardiovascular and Cerebrovascular Diseases	13	26.53
	Diabetes	2	4.08
	Endocrine System Disease	8	16.33
	Respiratory System Disease	2	4.08
	None	24	48.98
Clinical Outcomes	Stayed in Hospital	0	0.00
	Discharged	46	93.88
	Decreased	3	6.12
Length of Stay in Hospital	3<Days	0	0.00
	3-6 Days	23	46.94
	7> Days	26	53.06
Body Mass Index (BMI) (Kg/Cm2)	Normal (18.5-24.99)	9	18.36
	Overweight (25.00-29.99)	20	40.82
	Obese (30 And Above)	20	40.82
Total		49	100.00

Table 2. Clinical characteristics of patients with Covid-19

Symptoms and findings *	**N**	**%**
Fever	35	71.43
Dry cough	23	46.94
Shortness of breath	21	42.86
Diarrhea	24	48.98
Other (muscle pain, vomiting etc.)	28	57.14
Appetite		
Yes	19	38.78
No	30	61.22
Mood		
Scared	29	59.18
Worried	9	18.37
Angry	4	8.16
Unhappy	4	8.16
Normal	3	6.12

Sleep status		
Normal (7-12h) (76 points and above)	20	40.82
Bad (4-6 hours) (26-75 points)	16	32.65
Very Bad (4> hours) (25 points and less)	13	26.53
Total	49	100.0

*The patients had multiple symptoms.

Table 3. ENT Findings of the Patients at Admission

ENT findings *	**N**	**%**
Nasal congestion	11	42.85
Nasal discharge	17	51.02
Otalgia	0	0
Tinnitus	1	2.04
Hearing loss	3	6.12
Sore Throat	11	22.44
Headache	16	32.65
Dizziness	0	0
Decrease in olfactory sense		
Yes	9	18.36
No	40	81.63
Decrease in gustatory sense		
Yes	13	26.53
No	36	73.46
Total	49	100.00

* The patients had multiple symptoms.

Table 4. Gender distribution of the biochemical blood values of the patients diagnosed with COVID-19

Laboratory findings	**Female**		**Male**		**P***
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	
Glucose (74-106 mg/dL)	104.71 (16.13)	103 (34)	99.28 (15.31)	103 (26)	0.620
WBC (3.98-10.04 µ/L)	6.64 (3.42)	7.40 (2.81)	6.97 (2.94)	7.50 (-1.56)	0.452
CRP (0-5 mg/l)	24.97 (20.67)	19.70 (42.4)	25.71 (18.44)	19.70 (38)	0.885
Lymphocyte (1.32-3.57 µ/L)	2.84 (4.47)	1.96 (1.52)	2.12 (1.03)	1.06 (1.65)	0.887
Neutrophile (1.78-5.38 µ/L)	18.73 (31.74)	4.30 (3.10)	10.66 (22.49)	3.46 (1.70)	0.872
Monocytes (0.3-0.82 µ/L)	1.31 (2.26)	0.40 (0.70)	0.67 (1.15	0.64 (0.70)	0.487
ALT (5-40 U/L)	29.82 (25.97)	19 (15.50)	34.84 (30.31)	20.00 (17.50)	0.325
AST (7-49 U/L)	26.12 (9.73)	23.00 (16.00)	27.48 (11.63)	21.00 (17.50)	0.949
GGT (0-38 U/L)	30.41 (10.75)	32.00 (7.00)	44.32 (10.75)	32.00 (7.00)	0.429
LDH (120-246 U/L)	188.29 (42.96)	165.00 (82.50)	185.84 (31.95)	165.00 (48)	0.870
Bilirubin (Total Direct) (0.3-1.2 mg/Dl	0.53 (0.08)	0.57 (0.14)	0.50 (0.11)	0.57 (0.2)	0.690
Procalcitonin (0-0.05 ng/ml)	0.01 (0.04)	0.02 (0.09)	0.04 (0.04)	0.02 (0.09)	0.744
APTT (20-36sn)	29.21 (5.14)	29.00 (6.90)	28.59 (3.49)	29.10 (5.65)	0.501
PLT (163-337 µ/L)	202 (110.59)	249 (229)	269.80 (28.97)	279 (52.00)	0.171
D-DİMER (80-500 µ/L)	748.71(387.11)	738.00 (435.00)	656.20(331.66)	613.00 (435)	0.036
HG (13.7-17.5 g/dL)	12.84 (1.45)	13.30 (2.50)	12.18 (2.97)	13.30 (3.30)	0.026a
Kreatinin (0.7-1.3)	0.91 (0.23)	0.99 (0.50)	0.88 (0.28)	0.87 (0.45)	0.316
BUN (9-23 Mg/L)	18.77 (9.23)	13.00 (11.00)	17.88 (12.34)	13.00 (14.00)	0.726

P*: Mann Whitney U test; a: Independent t test

DISCUSSION

COVID-19 may present with mild, moderate or severe illness[10]. In severely ill patients, it may develop into ARDS, sepsis, and septic shock as in cases of pneumonia[10]. The majority of the patients included in the present study had mild to moderate COVID-19 infections. statistically, 46.94% of the patients had a cough, 71.43% had a fever and 42.86% had shortness of breath (Table 2). Most COVID-19 patients develop mild to moderate symptoms and recover without treatment. Such patients function as asymptomatic carriers in the community and spread the disease. In the community, 81% of patients

experience only a mild course of the disease[10]. People who have underlying diseases such as diabetes, hypertension and immune deficiency, and those over 60 years old have a higher risk of developing severe symptoms and dying from COVID-19. The COVID-19 fatality rate is 2.3% among patients diagnosed with laboratory tests. This rate is 15% for those over the age of 80 and 8% for those between the ages of 70 and 79[10].

Coronaviruses affects neurons, cytokine pathway and ACE receptors causing atypical presentations[11,12]. The viruses travel from sensory or motor nerve endings by neuronal transport into santral nervous system. Gustatory symptoms and muscle pain are also associated with the infection of the related neurons. Infectious toxic encephalopathy, metabolic disorders and hypoxia and activation of cytokine cascade can take place. In addition, the angiotensin converting enzyme 2 (ACE2) receptor also contributes to the pathogenesis of central nervous system[6]. ACE2 is a cardio-cerebral vascular protection factor present in the nervous system, skeletal muscles, blood vessels, lungs, intestines etc. ACE2 is also a target host for SARS-CoV2, causing blood pressure elevation thus increasing the risk of cerebral hemorrhage and cardiovascular disorders[12,13]. One example of atypical presentation is a patient with sore throat who visited the ENT outpatient clinic with unknown etiology of sore throat with no physical finding of cryptic tonsilitis. The patient's COVID-19 rapid test was positive and the patients were immediately hospitalized. This is an example of atypical COVID-19 presentation that may be due to glossopharyngeal nerve involvement.

Numerous studies in the literature have reported that anosmia could be used as an early diagnostic tool for COVID-19 and giving idea about prognosis. 85.6% of COVID-19 patients had olfactory dysfunction in a study by Leichen et al. (2020)[6]. Among them, 79.6% of the patients had anosmia, 20.4% hyposmia,12.6% pantosmia and 32.4% parosmia. Among the patients with olfactory disfunction 88.8% of them suffered from gustatory disorders[6]. In another study by Mao et al., hypogeusia and hyposmia, which are both peripheral nervous system symptoms related to COVID-19 were determined in 5.6% and 5.1% of the patients, respectively[10]. In the present study, 18.36% of the patients had either anosmia or hyposmia (Table 3). Leichen et al., stated that anosmia and hypogeusia were more widespread in Europe compared to Asia and that this could be associated with the mutation of the viral morphology[6]. There are studies about such insidious COVID-19 situations in the literature like the examples of insidious onset anosmia and gustatory dysfunction in our observation. Kaye et al., conducted with 237 COVID-19 patients based on their application to various outpatient clinics and found that 73% of the patients had anosmia, while 26.6% had anosmia as the first symptoms[14]. Moein et al. (2020), suggested that measuring olfactory sense may sometimes help to identify COVID-19 patients in need of early treatment or quarantine[15]. Olfactory losses are detected with olfactory measurements 98% probability whereas without tests 35%[15]. In the present study, such a high rate of olfactory disorders was not detected because of testing with 4 types of odors. In a study conducted by Leichen et al., an 11.8% probability of olfactory disorder was observed as the first COVID-19 symptom[6]. Patients with olfactory disorders showed mild clinical course as mentioned by Yang et al. (2020), in her study of 169 COVID-19 positive patients in which 75% of the patients had olfactory dysfunction (n=128) and that 20.1% of these patients (n=26) required hospitalization. Self-recorded olfactory impairment was hallmark of COVID-19 and may be an important predictor of good prognosis requiring less hospitalization[16]. The findings of the present study were in support of these results. The patients in the present study with anosmia (n=9, 18.36%) stayed in the hospital for a minimum of five days, completed their course of treatment and were discharged. Laboratory results shows multiple organ damage as lung, heart, liver, kidney, brain, bone marrow are infected by the virus[17]. Among the patients with mild and moderate COVID-19; decreased total white blood cell count, lymphocyte count, hemoglobin (hb) whereas prolonged prothrombine time, and elevated lactate dehydrogenase, liver enzymes, muscle enzymes (ALT, AST), alkaline phosphatase (ALP), gamma-glutamyl transpeptidase (GGT) and total bilirubin, C-reactive protein, sedimentation rate, D-dimer and rarely procalcitonin are observed. In our study; a statistically significant difference was found between D-dimer and hb ($p<0.05$) D-dimer was higher in males, Hb was higher in females. It is known that hemoglobin levels decrease with older age and comorbid disease and disease severity Also, it is known that hb is higher in men than women[18]. This finding can be attributed to the large number of men with severe disease with low hb counts. D-dimer is an identifier of thrombotic state. Existence of a

concomitant disease such as diabetes, cancer, stroke can contribute to higher levels of D-dimer and D-dimer levels are lower in men[19]. In the literature the D-dimer levels determined in the patients in the present study were higher than those in the literature (Table 4). This result can also be explained by large number of men with severe disease in our study. Subcutaneous enoxaparin was administered to a patient with pulmonary embolism and to others with high D-dimer levels to prevent the thromboembolic sequele. We also used chest CT as it gives information about COVID-19, exactly[20,21]. The rate of conditions compatible with COVID-19 in CT was 98%, which was more diagnostic compared to RT-PCR 71%[17,22]. All of the patients (n=49) in the present study had either positive rapid test or PCR test results and had radiological findings compatible with COVID-19 in their CT.

Body Mass Index (BMI), blood groups, smoking are thought to play role in the development and course of Covıd-19. Obesity is linked more the rate of patients with a BMI was 18.36%. Many studies have linked obesity to more severe COVID-19 cases and death. Simonnet (2020) et al. determined that the mechanical ventilation requirement of patients diagnosed with COVID-19 in intensive care units was seven times more for those with a BMI>35 Kg/m^2 compared to those with a BMI<25[23]. Among individuals diagnosed with COVID-19 under the age of 60 in New York, compared to the individuals with a normal BMI (BMI<30 Kg/m^2), the likelihood of requiring intensive care among first degree obese (30-34.9 Kg/m^2), and second degree (35-39.9) and morbidly obese (>35 Kg/m^2) patients was found to be 1.8 times and 3.6 times higher, respectively[24]. It has been argued that obesity or excessive ectopic fat accumulation may be a unifying risk factor for severe COVID-19 infection as they reduce the protective cardio-respiratory reserve, and at least partially strengthen the immune disorder, which appears to mediate progress in critical illness and organ damage. To determine whether obesity is an independent risk factor for the susceptibility to infection requires further research[25,26]. The ABO blood group is reported to be associated with ACE activity. Individuals with 0 blood group had increased IL-6 levels compared to individuals with other blood groups. Therefore, the O blood group maintains ACE2 in the renin angiotensin system (RAS) stronger than other blood groups, thus reducing the risk of developing hypertension. Hence, the individuals with 0 blood group are less likely to develop cardiovascular diseases and severe COVID-19, contrary to while A blood group. (European Journal of Preventive Cardiology). The ABO blood group predisposes individuals to severe COVID-19 and cardiovascular diseases[27,28]. Although 46,4% of the patients in this study had A blood group (Table 1). Smoking has detrimental effects on the lungs and immune system, making individuals vulnerable to infectious diseases. Smokers are two times more susceptible to influenza infections and have more severe infections than non-smokers. In this study, 75.51% of the patients (including those who have given up smoking, see Table 1) were non-smokers. This can explain the benign course of the patients recovering from the disease[29]. Patients with poor outcomes had a significantly and statistically higher rate of a history of smoking (27.3%) compared to patients showing improvement or stabilization (3.0%) according to Liu et al[30].

Anxiety and sleep disorders are commonly encountered problems among hospitalized COVID-19 patients. In this study, sleep disorders were seen at 59.18% of patients in whom 26.53% of them slept sleep less than 4 hours. 6.12% of the patients were determined to be in a normal mood, while the others felt scared, anxious, angry or unhappy. Liu et al. found that patients hospitalized with COVID-19 had anxiety and suffered from sleep disorders and that the condition of these patients could be improved with muscle relaxation exercises after administering myorelaxant drugs[30]. Relaxation exercises, meditational music, psycho-support should be advised to COVID-19 patients during stay in hospital.

In this study, 59.18% of the patients were 40 years old and above. 46.94% of them had A blood group, 55.10% were male, and 24.49% were smokers. More than half of the patients had a chronic disease (51.02%). 53.06% of them stayed in hospital for more than seven days. 81.64% of the them were overweight and obese in terms of their BMI. Patients suffered from a fever at 71.43%, dry cough 46.94%, shortness of breath 42.86%, nasal congestion 42.85 %, nasal discharge 51.02%, headache 32.65%, sore throat 22.44%, diarrhea 48.98%, scared 59.18%, anxiety 18.37%. The sleeping status of 59.18% of the patients was poor. Blood count results were compatible with the literature. And olfactory and gustatory disturbances are found to be related to good prognosis and mild clinical course.

While COVID-19 present with common symptoms, sometimes atypical symptoms can be the only finding during initial application to the hospital. Being aware of atypical symptoms helps early diagnosis, taking precautions by the doctors and also isolating the patients. Emerging atypical clinical presentations of COVID-19 gives us clues about the pathogenesis, transmission routes, prognostic features and many other issues about the disease. Olfactory and gustatory disturbances point to the effects of COVID-19 on neurons. While olfactory and gustatory disturbances show good prognosis, we must be prepared for the other effects on the nerves like demyelinating diseases in the future. Our study has some limitations such as working with a limited number of patients due to the risk of infection. The studies which involve more patients, can be done with more specific odor tests. We have to follow our patients who has olfactory and gustatory disturbances in long term, for the other neuronal effects of COVID-19 which can be the subject of another studies in the future.

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