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ORIGINAL RESEARCH

Clinical Presentation of Asymptomatic and Mild SARS-CoV-2 Infection in Riyadh, Saudi Arabia

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Background: There is substantial evidence that most SARS-CoV-2 infections are mild or even asymptomatic, yet they can transmit the virus to others. The current study described the clinical presentation of mild COVID-19 cases isolated in the ministry of health (MOH) quarantines in Riyadh, Saudi Arabia.

Methods: A cross-sectional study targeted the SARS-CoV-2 PCR +ve asymptomatic and mild COVID-19 patients isolated in the Saudi MOH quarantines in Riyadh city between July and December 2020. The confirmed COVID-19 patients were enrolled and interviewed by telephones after obtaining the informed consent.

Results: The study included 223 patients with a mean age of 32.5±10.7 years old. The majority were male 156 (70%). Only 27 [12.1%; 95% CI = (8.1–17.1%)] were asymptomatic. General fatigue was the most common reported symptom, 43.5%, followed by headache with 42.6%, and cough by 38.1%. Anosmia and ageusia were reported by 33.2% and 31.4%, respectively. The least common reported symptoms were vomiting, earache, and nausea with 1.8%, 4.0%, and 7.6%, respectively.

Conclusion: The top five clinical manifestations of mild COVID-19 cases were general fatigue, headache, cough, anosmia, and ageusia. Only 12% of confirmed COVID-19 cases were asymptomatic.

Keywords: mild COVID-19, clinical presentations, anosmia, ageusia, Saudi Arabia

Introduction

Coronavirus disease 2019 (COVID-19) is a newly recognized illness detected in Wuhan, Hubei province, China, and spread rapidly worldwide.[1–3] COVID-19 is initially characterized by fever, sore throat, cough, and dyspnea, mainly the respiratory system's manifestations.[4–6] A recent meta-analysis (n = 3598 patients) reported that around 11%-14% of the COVID-19-related symptoms are headaches in patients who had either died or recovered.[7–9] In Beijing, a series of 262 confirmed cases of the COVID-19, fever, cough, fatigue, dyspnea, and headache with a rate of 6.5% were the most common symptoms at the onset of illness.[10] Anosmia has already been reported in the course of COVID-19 and other SARS-CoV-2 infections.[11,12] In COVID-19 patients, ageusia, and anosmia are not accompanied by nasal obstruction or other rhinitis symptoms. Therefore, this is probably due to the virus's direct damage to the olfactory and gustatory receptors.[13,14] Another Chinese multicenter study enrolling 204 patients until early March 2020, 103 patients (50.5%) reported digestive symptoms, including lack of appetite (81 [78.6%] cases), diarrhea (35 [34%] cases), vomiting (4 [3.9%] cases), and abdominal pain (2 [1.9%] cases).[15] The current study aims to

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describe the clinical presentations of patients with mild COVID-19 in Riyadh, Saudi Arabia.

Subjects and Methods

This study was part of an interventional clinical trial aiming to examine the efficacy of black seeds on the Immunity of mild COVID-19 patients.

Study Population

The study was conducted on mild or asymptomatic COVID-19 patients isolated in Al Izdihar Holiday Inn Hotel quarantine and Marriott Hotel quarantine in Riyadh city, between July and December 2020. A total of 223 patients fulfilling the inclusion and exclusion criteria were included in the study. Inclusion criteria were: (1) Age 18 up to 85 years (2) Positive SARS-CoV-2 PCR diagnostic test (3) Mild COVID-19 disease, defined as laboratory-confirmed severe acute respiratory syndrome coronavirus-2 (SARS-CoV-19) case and any COVID-19 related symptoms with no oxygen requirement or evidence of pneumonia. (4) Asymptomatic SARS-CoV-2 infection, defined as a laboratory-confirmed SARS-CoV-2 case with no symptoms. The exclusion criteria were: (1) History of drug addiction or (2) Pregnant and lactating women or (3) Malignancy or (4) Chronic illnesses except for hypertension and diabetes mellitus or (5) Moderate to severe respiratory distress requiring respiratory or critical care supports. All patients agreeing to participate were asked to sign a written consent form. Qualified health practitioners carried out a thorough history and clinical examination. Patients were interviewed by telephone to fill a prepared questionnaire in Arabic and English using Survey Monkey platform. The questionnaire included demographic information, history of illnesses, immunization history, immunity-related questions, body mass index, and detailed COVID-19 related symptoms.

Statistical Analysis

Data were entered and analyzed using IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Categorical data were presented as counts and percentages, and numerical data presented as mean (± SD). A Chi-square test was used to assess the association between patients' characteristics and symptomatology. A test with a p-value less than 0.05 was considered statistically significant.

Results

The study included 223 COVID-19 patients with a mean age of 32.5±10.7 years old. Almost half of the patients were between 18 to 29 years old. The majority were male, 156 (70%), and around three-quarters were Saudi. One-third of patients were within the normal BMI, and one-third were overweight (Table 1). Only 12 (5.4%) patients traveled outside KSA during the last six months. The majority of patients, 152 (68.2%), never smoked any tobacco. Only three patients had a history of Malaria infection. Eighty-four patients (37.7%) had close contact with confirmed COVID-19 cases, and 99 (44.4%) were unsure if they had close contact. The majority of patients, 144 (64.6%), reported taking medication or Vitamins (Table 2). Out of the 223 patients, only 27[12.1%; 95% CI = (8.1–17.1%)] were Asymptomatic. The symptoms reported by the remaining 196 patients are presented in Figure 1. General fatigue was the most common reported symptom by 43.5%, followed by headache with 42.6%, and then cough by 38.1%. Loss of smell and taste were reported by 33.2% and 31.4%, respectively. The least common reported symptoms were vomiting, earache, and nausea with 1.8%, 4.0%, and 7.6%, respectively. There was no statistically significant association between any of the patients' characteristics and symptomatology (all p-values > 0.05) (Table 3).

Discussion

This study focused on the clinical presentations of mild COVID-19 patients admitted to the MOH quarantines in Riyadh, Saudi Arabia. According to the latest Saudi demographic survey, the majority of the Saudi population is under the age of 60, which was reflected in the present study population's sociodemographic characteristics. The mean age is 32.5±10.7 years old, and almost half of them were between 18 to 29 years old.

The association between COVID-19 and obesity was evident in the current study as the majority (64%) of patients were either overweight or obese. This finding is supported by a recent systematic review and meta-analysis that found an association between obesity and poor composite outcome in COVID-19 patients.[16] As the data on smoking and SARS-CoV-2 infection is still growing, almost one-third of the study populations have used tobacco products.[17] The majority of the study population has not reported any close contact with confirmed COVID-19 cases. The primary mode of COVID-19 transmission is

Table 1 Patients' Baseline Characteristics

		N	%
Sex	Male Female	156 67	70.0% 30.0%
Age (years)	< 30 30–39 40+	109 55 59	48.9% 24.7% 26.5%
Nationality	Saudi Non-Saudi	173 50	77.6% 22.4%
Body mass index groups	Underweight Normal weight Overweight Obese	4 75 78 63	1.8% 34.1% 35.5% 28.6%
Age	Mean ±SD	32.5	±10.7
Pulse rate	Mean ±SD	89.7	±11.4
Systolic	Mean ±SD	122.5	±12.6
Diastolic	Mean ±SD	80.9	±9.8
Temperature Celsius	Mean ±SD	36.8	±0.6
Respiratory rate	Mean ±SD	17.8	±7.1

Table 2 Patients' Past History

		N	%
Travel history outside KSA during the last six months?	No Yes	211 12	94.6% 5.4%
Smoke or use tobacco products	No Yes Ex-smoker	152 61 10	68.2% 27.4% 4.5%
Number of Flu per year	1 time 2 times 3 times More than 3 times	109 82 24 8	48.9% 36.8% 10.8% 3.6%
Did you have a Malaria infection before?	No Yes Not sure	220 3 0	98.7% 1.3% 0.0%
Did you have any chronic infection before?	No Yes Not sure	168 3 52	75.3% 1.3% 23.3%
Did any of your close contact members have had COVID-19 infection before?	No Yes Not sure	40 84 99	17.9% 37.7% 44.4%
Is the subject currently or previously taking any medication, including OTC, Vitamins, and/or supplements?	No Yes	79 144	35.4% 64.6%

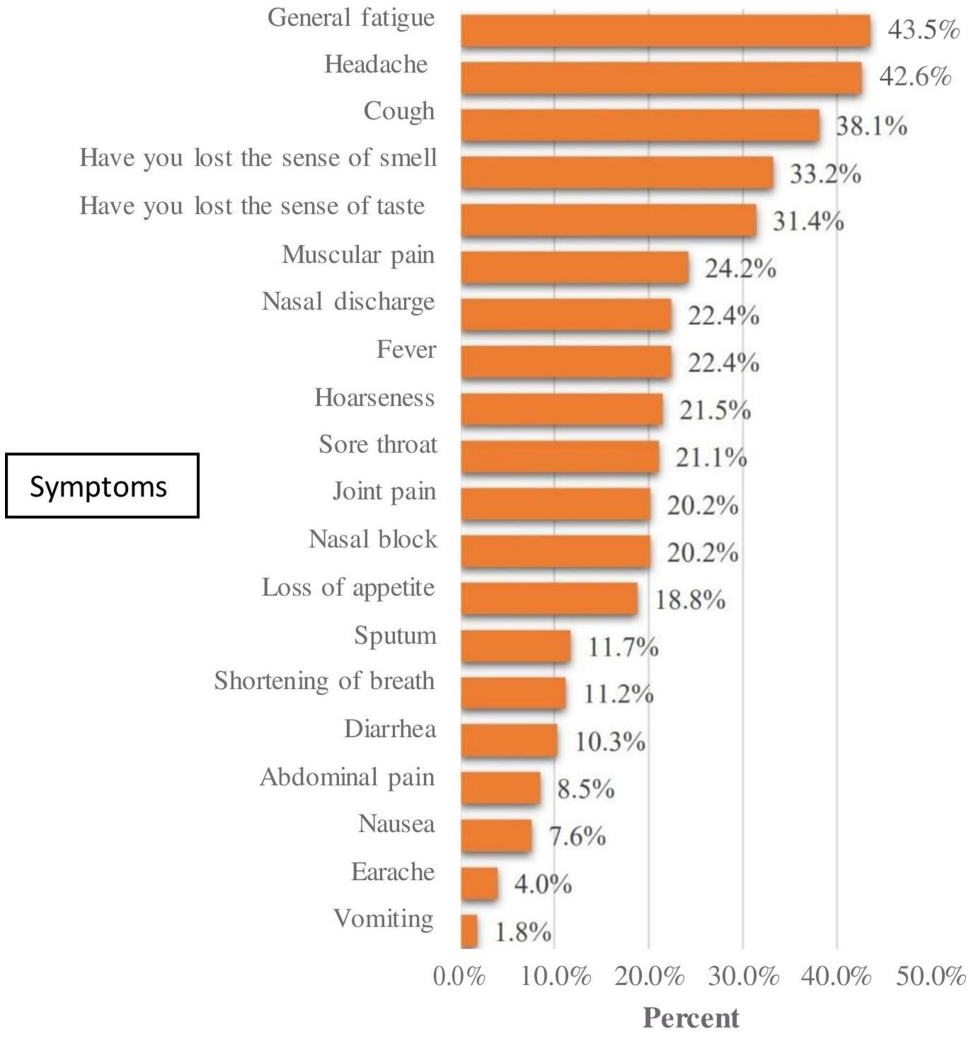


Figure 1 Clinical presentation of the symptomatic individuals with mild COVID-19.

via exposure to infected droplets. The virus spreads via respiratory droplets from infected individuals while sneezing, coughing, or talking without covering the mouth and the nose.[18] With the global pandemic of COVID-19, there is substantial evidence that many infections of SARS-CoV-2 are mild or even asymptomatic. Yet, they can transmit the virus to others.[19]

The present study showed that out of the 223 patients, only 27 [12.1%; 95% CI = (8.1–17.1%)] were asymptomatic. This could be explained by the fact that most of the study population was either overweight or obese. Kim et al found that asymptomatic individuals with COVID-19 are about 20%. Hence, their data fill an important gap concerning the prevalence of asymptomatic individuals who constitute the disease pyramid.[20] Previous studies reported that viable SARS-CoV-2 was isolated from symptomatic individuals. Certain groups of infections had been transmitted from asymptomatic patients;[21,22] therefore, the notably high proportion of asymptomatic individuals in Kim's finding further supports the value of social distancing in controlling the current pandemic. The present study reveals no significant association between patients' characteristics and any COVID-19 related symptoms (all p-values > 0.05). Symptoms have been reported in 196 (88%) patients in the current study.

General fatigue was the most common symptom reported by 43.5%, followed by headache with 42.6%, and cough by 38.1%. Loss of smell was reported by 33.2%, whereas loss of taste by 31.4% of patients. The least common reported symptoms were vomiting, earache, and nausea with 1.8%, 4.0%, and 7.6%, respectively.

Anosmia and ageusia are related to a wide range of viral infections.[23,24] The upper respiratory tract infection can cause acute-onset anosmia or ageusia because of viral

Table 3 Association Between Patients' Characteristics and Asymptomatic

		Asymptomatic				P-value
		Asymptomatic		Symptomatic		
		N	%	N	%	
Sex	Male	23	14.7	133	85.3	0.075
	Female	4	6.0	63	94.0	
Age (years)	< 30	15	13.8	94	86.2	0.341
	30–39	8	14.5	47	85.5	
	40+	4	6.8	55	93.2	
Nationality	Saudi	21	12.1	152	87.9	1.000
	Non-Saudi	6	12.0	44	88.0	
Body mass index groups	Underweight	0	0.0	4	100.0	0.959
	Normal weight	10	13.3	65	86.7	
	Overweight	9	11.5	69	88.5	
	Obese	7	11.1	56	88.9	
Travel history outside KSA during the last six months?	No	24	11.4	187	88.6	0.165
	Yes	3	25.0	9	75.0	
Smoke or use tobacco products	No	16	10.5	136	89.5	0.199
	Yes	11	18.0	50	82.0	
	Ex-smoker	0	0.0	10	100.0	
Number of Flu per year	1 time	16	14.7	93	85.3	0.712
	2 times	9	11.0	73	89.0	
	3 times	2	8.3	22	91.7	
	More than 3 times	0	0.0	8	100.0	

damage to the olfactory epithelium.[24] Moreover, viruses that can use the olfactory nerve as a route into the central nervous system include influenza A virus, herpes viruses, poliovirus, rabies virus, parainfluenza virus, adenoviruses, and Japanese encephalitis virus.[23] In mouse models, transneuronal penetration of SARS-CoV-2 is demonstrated through the olfactory bulb, and its infection resulted in the rapid, transneuronal spread of the virus to related areas of the brain.[25]

A recent Korean study reported that anosmia and ageusia were observed in 15.3% of patients in the early stage of COVID-19 and 15.7% of patients with asymptomatic-to-mild disease severity. Most patients with anosmia or ageusia recovered within three weeks and seem to be part of essential symptoms and clues for the diagnosis of COVID-19, particularly in the early stage of the disease.[25]

Conclusion

The top five clinical manifestations of mild SARS-CoV-2 infections were general fatigue, headache, cough, anosmia, and ageusia. Only 12% of confirmed COVID-19 cases were asymptomatic.

Ethics Approval

The Institutional Review Board of Imam Mohammad Ibn Saud Islamic University has approved this study under project number 22-2020 session 32 dated May 7, 2020. The general directorate for research and studies at Saudi MOH under IRB number 20-147E dated Jun 20, 2020. The study was also registered in the Saudi FDA under SCTR no. 20051303 dated Jun 29, 2020, and it was according to the declaration of Helsinki.

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Disclosure

The authors have no conflicts of interest to declare. All co-authors have seen and agree with the manuscript's contents, and there is no financial interest to report. Moreover, the authors certify that the submission is original work and is not under review at any other publication.

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