How to Cite:
Abady, N. R., Al-Khafaji, Z. A., & Baay, A. S. (2022). Clinical features associated with Severe Acute Respiratory Syndrome (SARS-COV2). *International Journal of Health Sciences*, *6*(S1), 5679–5688. https://doi.org/10.53730/ijhs.v6nS1.6239

Clinical features associated with Severe Acute Respiratory Syndrome (SARS-COV2)

Noor R Abady
PhD Student at Babylon University College of Medicine, Department of Microbiology, Al-Qasim Green University Department of Microbiology

Zaytoon A. Al-Khafaji
Babylon University College of Medicine, Department of Microbiology

Ali S. Baay
Babylon University College of Hammurabi of Medicine, Department of Medicine

***Abstract*---**Introduction the majority of individuals with coronavirus disease SARS-COV2 have mild to moderate illness that does not necessitate hospitalization. However, no research has been conducted to examine the progression of symptoms in Babylon province. Method, SPSS version 26 were used in analysis of data collected and revealing all possible correlation. Conclusion According to the findings, the majority of patients had low levels of oxygen 71(62.8%) of the time, whilst patients with normal levels 42(37.2%) of the time were in severe condition. Despite the fact that all SARS-COV-2 patients in this study had vital signs taken, it was discovered that more than half of them had SPo2 levels within the normal range, with a 150(64.3%) significantly different P-value (0.0001) 113 (48.5 %) of those with severe symptoms described the most severe symptoms, followed by moderate and mild symptoms. There was a high prevalence of chronic history, with 145 individuals (62 percent) having no history of chronic disease, diabetic patients (60%), and hypertension patients (28 percent) (12 %). The overall number of patients who required oxygen was 101 (43.3 %) less than the total number of patients who did not require oxygen.

***Keywords*---**SARS-COV2, Symptoms, chronic disease, oxygen requirement and clinical features.

Introduction

Coronavirus (SARS-COV2) that causes severe acute respiratory syndrome (SARS-CoV-2), manifests in a variety of ways, from asymptomatic infection to severe

***Corresponding author**: Abady, N.R.; Email: noorabady@vet.uoqasim.edu.iq*
Manuscript submitted: 09 Feb 2022, Manuscript revised: 27 March 2022, Accepted for publication: 18 April 2022

respiratory failure and multiorgan dysfunction, which can lead to hospitalization and death. Because nothing was known about SARS-CoV-2 before 2020, the medical literature has been flooded with reports of the virus, the sickness, and treatment outcomes. A syndrome of fever, cough, weariness, myalgia, and dyspnea is common among patients with severe illnesses that necessitate hospitalization, and is frequently accompanied by gastrointestinal symptoms such as diarrhea. Multifocal ground-glass infiltrates are frequently seen on chest imaging. Symptomatic illness can last for a long time, and recovery might be gradual(Huang *et al.*, 2020). Moderate sickness is characterized by clinical or radiographs evidence of a lower respiratory tract infection with oxygen saturations greater than 94 percent(Gandhi *et al.*, 2020). There hasn't been much written about the characteristics and outcomes of adult outpatient patients with moderate disease. Recent outpatient investigations have revealed symptoms at presentation that are similar to those of patients who require hospitalization later in the outpatient course(Pullen *et al.*, 2020). Most outpatients who initially report symptoms continue to be symptomatic 1 to 2 weeks following diagnosis(Lapostolle *et al.*, 2020). The goal of this study was to characterize the Clinical Features of Severe Acute Respiratory Syndrome (SARS-COV2).

Material and Methods

Collecting of data

Between April 15, 2020, and July 11, 2020, the study was done at Babylon University and Morjan Hospital. Patients had their nasopharangeal swabs tested, and the results were gathered. For screening, all patients were given an NP swab SARS-CoV2 RT-PCR, and some of patients could not do it as well as included in our study.

Statistics analysis

SPSS version 25 was used for the statistical analysis. Frequencies and percentages were used to present categorical variables. All data statistical analyses were performed using the Statistical Package for Social Science (SPSS 26). The frequency and percentage of binomial variables were calculated using the Kolmogorov-Smirnov test.

Results and Discussion

Clinical Features associated with Severe Acute Respiratory Syndrome (SARS-COV2)

The frequency of (symptoms, chronic history, swab, and oxygen demand) is illustrated in table1 for 233 patients with a positive SARS-COV2. The most severe symptoms were reported by 113(48.5) percent of those sever, followed by moderate and mild symptoms. In contrast, there was a significant presence of chronic history with no history of chronic disease 145(62%), followed by diabetic patients 60(12%), and hypertension 28. (12 %). The total number of patients who required oxygen was 101 (43.3 percent) lower than the total number of patients who did not require oxygen (132). (56.7 %). However, 62 percent of swabs were

positive, while 37.3 % were negative mentioned in the table 1and figure 1. Our findings demonstrate the vast variety of SARS-COV2 symptoms. Our finding of no history of chronic disease was a hundred percent disagreed with the study, patients who have pre-existing cardiovascular disease, specifically hypertension and atherosclerosis, are at a substantially higher risk of developing severe and fatal cardiovascular disease(Flaherty *et al.*, 2020). Infection with COVID-19.According to study, roughly 85 percent of people infected with COVID-19 experience minor disease (Blair *et al.*, 2021). However, the study stated that diabetic patients with type 1 or type 2 diabetes are at a higher risk of developing a severe form of COVID-19 and also have a higher death rate than that of the non-diabetic people. Diabetes patients have chronic, low-level inflammatory processes, which leads to global cellular dysfunction, which underpins the disease's vast range of symptoms, including an elevated risk of pneumonitis. While the higher severity of COVID-19 in diabetic patients is not fully understood, dysregulated immunological and inflammatory responses are shared by both disorders(Roberts *et al.*, 2021).

Table 1
The frequency of (symptoms, chronic history, swab and oxygen requirement)

	Frequency	Percent
Symptoms		
Severe	113	48.5
moderate	83	35.6
mild	37	15.9
Total	233	100.0
Chronic history		
no history	145	62.2
diabetes	60	25.8
hypertension	28	12.0
Total	233	100
Swab		
found	146	62.7
not found	87	37.3
Total	233	100.0
Oxygen required		
need	101	43.3
not need	132	56.7
Total	233	100.0

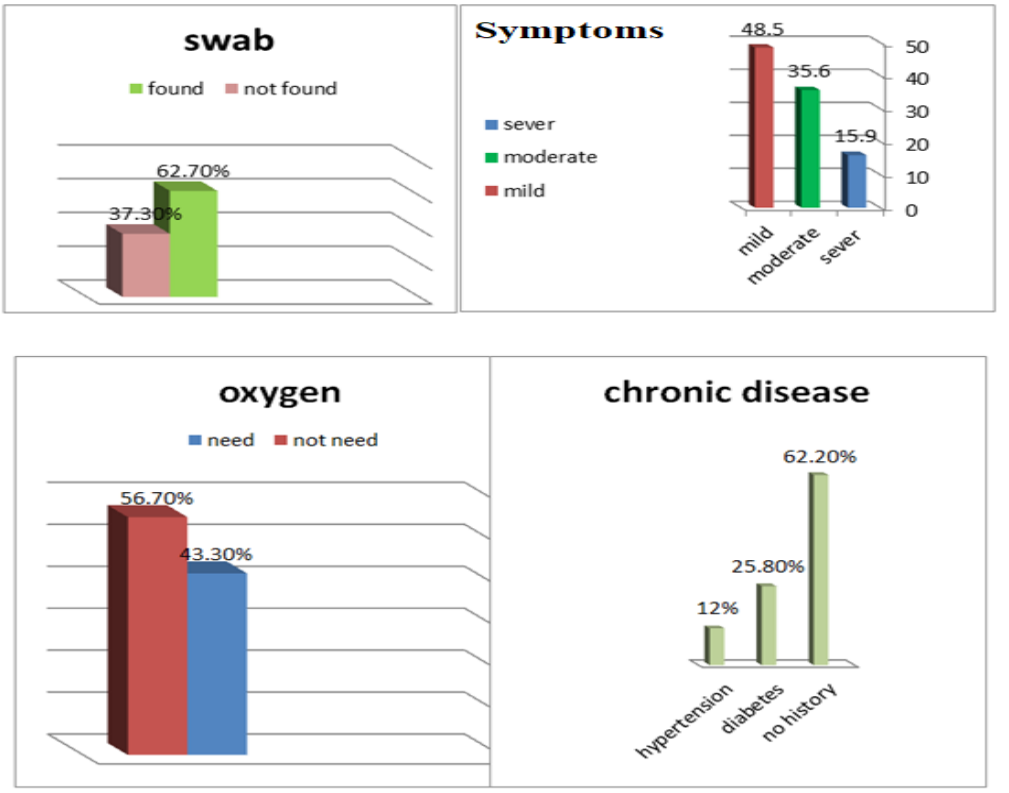

Figure 1. The frequency of (symptoms, chronic history, swab and oxygen requirement)

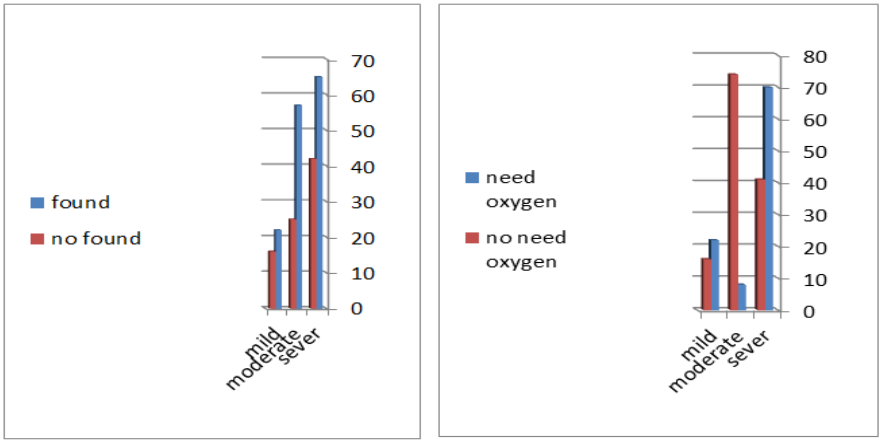

Figure 2. The frequency of correlation between swabs and oxygen requirement to the symptoms

Measurement of Oxygen SpO2 among Study Population

Table 2
Symptom * oxygen correlation

Correlation						
			oxygen need	not need	Total	P value
symptoms	sever	N	71	42	113	0.001
		%	62.8%	37.2%	100.0%	
	moderate	N	8	75	83	0.001
		%	9.6%	90.4%	100.0%	
	mild	N	4	33	37	0.004
		%	10.8%	89.1%	100.0%	
Total		N	83	150	233	
		%	35.6%	64.3%	100.0%	

Based on the patients' vital signs, the highest percentage of patients had low level of oxygen 71(62.8)% while patients with normal level 42(37.2)% those were under sever condition as shown in table 2. Although, vital signs were measured in all SARS-COV-2 patients in this investigation, it was discovered that more than half of the patients had SPo2 levels within the normal range, with a 150(64.3 percent) significantly different P-value (0.0001), table 2. This finding is in accordance to that seen in (Al-Khafaji *et al.*, 2022; Pimentel *et al.*, 2021), who noticed that most non-ICU patients with confirmed SARS-COV2 at the time of infection had normal SPO2 and BP levels at the time of infection, and that there was an increase in heart pulse after three days of infection in the United Kingdom. When compared to the findings of a previous study by (He *et al.*, 2020)shows that tachycardia and hypotension are rare among SARS-COV-2 patients in Wuhan, China. This would be linked to severe endothelial damage in ACE2-positive lungs (Abady *et al.*; Tay *et al.*, 2020)

In another study, (Guan *et al.*, 2020)included 1099 hospitalized SARS-COV-2 patients, and 18.7 percent of the 1099 hospitalized SARS-COV-2 patients exhibited hypoxia, with a common requirement for supplemental oxygen of 41 percent in China. (Fuglebjerg *et al.*, 2020)revealed that half of 26 confirmed non-ICU SARS-COV-2 patients had SPO2 lower than normal range SpO2 90 percent of 26 confirmed non-ICU SARS-COV-2 utilizing RT-PCR in Denmark. Low SPO2 in a non-ICU patient with no indications of hypoxia. This could be related to a condition known as "silent hypoxia" in SARS-COV-2 patients, which is a precursor to the development of severe infections such as pneumonia and ARDS, as well as the need for a ventilator (Luks *et al.*, 2020).

Table 3
Chronic disease * oxygen correlation

Correlation			oxygen need	not need	Total	P value
Chronic disease	no history	N	67	78	145	0.371
		%	46.2%	53.8%	100.0%	
	diabetes	N	25	35	60	0.363
		%	41.7%	58.3%	100.0%	
	hypertension	N	9	19	28	0.170
		%	32.1%	67.9%	100.0%	
Total		N	101	132	233	
		%	43.3%	56.7%	100.0%	

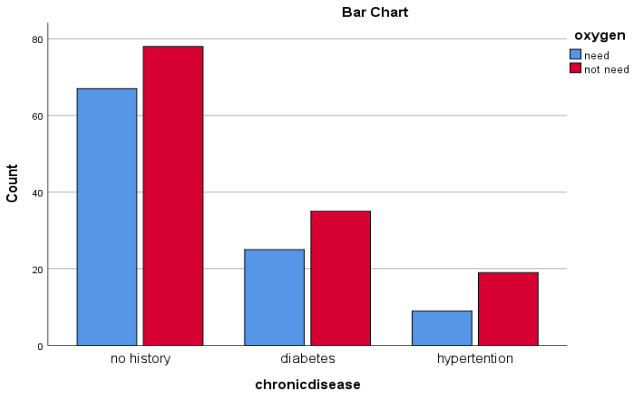

Figure 3. Chronic disease *oxygen correlation

Patients with SAR-COV-2 association with chronic disease such as diabetes required oxygen (41.7 %) while 58.3 %did not, with hypertension patients having the greatest percentage of no requirement oxygen. In this study, the percentage of SARS-COV2 patients with chronic conditions such as hypertension, diabetes, or no history was (32.1 %, 41.%, and 46.2%, respectively) as shown in the table 3 and figure 3. This finding is consistent with (Wu & Wang, 2020), who discovered that 41 SARS COV2 patients in Wuhan City had fewer than half the amount of comorbidities, including diabetes (20%), hypertension (15%), and cardiovascular disease (15%). According to (Guan & Wang, 2020), out of 1099 patients, 179 had severe disease with comorbidities such as hypertension (23.7%), diabetes mellitus (16.2%), coronary heart disease (5.8%), and cerebrovascular disease (2.3%). According to multiple research on the presence of comorbidities disease, 20-51% of SARS-COV-2 patients had at least one ailment at the time of admission, which comprised 10-15% hypertension, 10-20% diabetes, and 7-40% cardiovascular disease (Zheng *et al.*, 2020). According to a research by (Zheng & Yang, 2020), 30 percent of the 140 SARS-CO2 patients admitted to the hospital had hypertension, and 12 percent had diabetes. Patients with common comorbidities, such as hypertension (58 percent), cardiovascular disease (59 percent), and diabetes (71 percent), are at high risk for SARS-COV-2 infections and require hospitalization (Yang *et al.*, 2020). This might be attributed to immune system dysfunction,

thymus gland atrophies, and function reduces as people age. The thymus gland is a main lymphoid organ that produces immunocompetent T lymphocytes. (Rezzani *et al.*, 2014) It is important for the immune system, which acts as the body's defensive mechanism, monitoring and protecting against a variety of diseases. (Szabo *et al.*, 2019).

Table 4
Chronic disease * swab correlation

correlation			swab found	not found	Total	P value
Chronic disease	no history	N	87	58	145	0.556
		%	60.0%	40.0%	100.0%	
	diabetes	N	40	20	60	0.554
		%	66.7%	33.3%	100.0%	
	hypertension	N	19	9	28	0.305
		%	67.9%	32.1%	100.0%	
Total		N	146	87	233	
		%	62.7%	37.3%	100.0%	

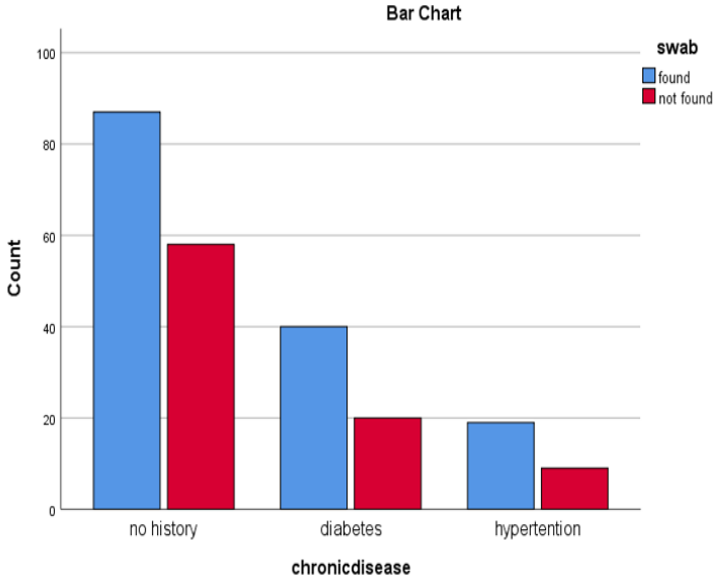

Figure 4. Chronic disease* swab correlations

There was no significant value for the swab present or not in correlation with the chronic condition, despite the fact that there was still variation present with a minor effect. The swab test were in suspicious in some cases which is revealed by data imply that CT scan can detect a large number of hospitalized COVID-19 patients overall, based on those who had a suspicious CT and tested negative

with RT-PCR(China, 2020). There were only a few patients who had a negative CT scan but were RT-PCR positive from the start. 79.2 percent of patients (42/53) used to have a suggestive CT in the minority of systematic review identified patients who were initially RT-PCR negative but later became positive(Karam *et al.*, 2021). Table 5 summarize all the correlation with significant effect in symptoms for the chronic disease and oxygen in comparing with other parameter.

Table 5.
Correlation for all (chronic disease *, swab, oxygen, and symptoms)

Correlations						
			Chronic disease	swab	oxygen	symptoms
Spearman's	Chronic disease	Correlation Coefficient		-.070-	.084	-.081-
		Sig. (2-tailed)		.284	.200	.217
		N		233	233	233
	swab	Correlation Coefficient	-.070-		-.041-	-.038-
		Sig. (2-tailed)	.284		.534	.563
		N	233		233	233
	oxygen	Correlation Coefficient	.084	-.041-		.253**
		Sig. (2-tailed)	.200	.534		.000
		N	233	233		233
	symptoms	Correlation Coefficient	-.081-	-.038-	.253**	
		Sig. (2-tailed)	.217	.563	.000	
		N	233	233	233	
**. Correlation is significant at the 0.01 level (2-tailed).						

Conclusion

The most severe symptoms were described, followed by moderate and mild symptoms. There was a significant incidence of chronic history, with 145 people (62%) having no history of chronic disease, diabetic patients (60%) and hypertension patients (28%) having no history of chronic disease (12 percent). The total number of patients who needed oxygen was 101 (43.3 percent) fewer than the total number of patients who did not. Conclude that, clinical features of SARS-COV2 have no stand-alone role, which is validated when compared to other investigations.

Acknowledgments

We would like to thank you for following Morjan Hospital and Central Laboratory health (Babylon province). Self-funded.

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