

HOSPITALIZED COVID-19 PATIENTS WITH A HISTORY OF OBSTRUCTIVE SLEEP APNEA

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ABSTRACT

Introduction: COVID-19 is caused by the novel coronavirus SARS-CoV-2. Existing literature indicates that COVID-19 patients have risk factors that are also associated with obstructive sleep apnea (OSA), such as hypertension and diabetes mellitus.

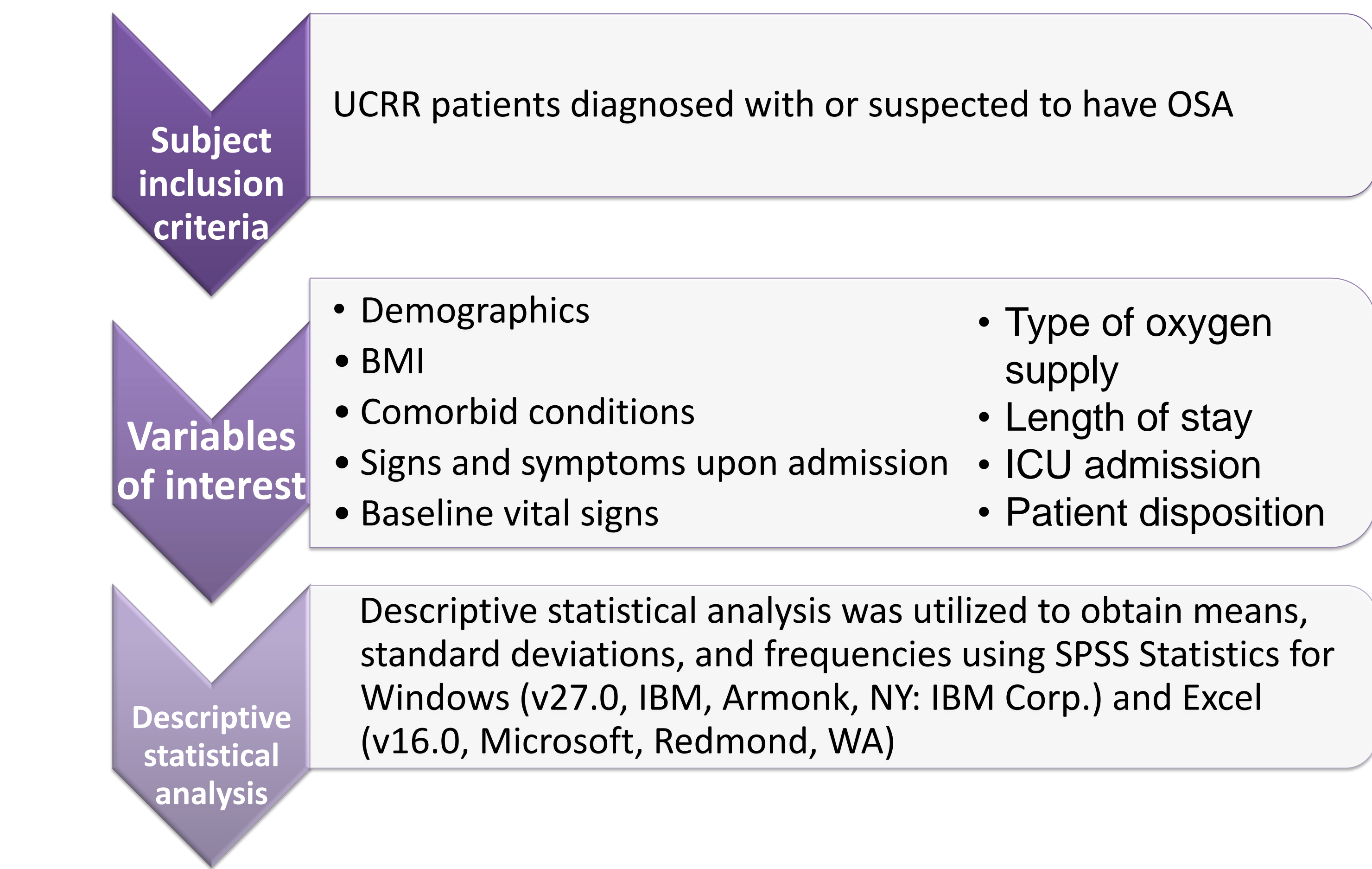
Objective: The objective of this analysis was to evaluate the characteristics and clinical course of patients with a history of OSA who were hospitalized for COVID-19.

Materials and Methods: UIC's COVID Registry for Research, a database secured in UIC's REDCap system which contains data regarding the demographics, clinical risk factors, and clinical outcomes of the first case series of 239 inpatients who tested positive and were hospitalized for COVID-19 at UIH between March 18 - May 6, 2020, was examined to identify patients with a documented history of diagnosed or suspected OSA. Data exists for up to 20 days post-positive COVID test.

Results: Of the initial 239 patients hospitalized for COVID-19, 36 (15.1%) were either diagnosed or suspected to have OSA. Ages ranged from 24-89 years, half were male. Most patients were African American and non-Hispanic/non-Latino. BMI ranged from 18.5-61.7 kg/m², mean ± standard deviation of 40.1, ± 9.6. Comorbidities present included hypertension, history of smoking, type 2 diabetes mellitus, and congestive heart failure. Most of the patients were admitted for under one week. Most frequently noted symptoms at baseline included cough, fever, dyspnea, and respiratory distress. Most patients required nasal cannula as the maximum degree of oxygen support. Most patients had recovered at day 20 after testing positive.

Conclusion: This study revealed a slightly higher prevalence of OSA in hospitalized COVID-19 patients compared to the general population. These patients tended to exhibit respiratory-related signs/symptoms and medical history associated with severe COVID-19.

METHODS



INTRODUCTION

COVID-19 is caused by the novel coronavirus SARS-CoV-2. Symptoms range from mild (fever, cough, fatigue) to severe (dyspnea and chest pain). While many people tend to experience a mild to moderate disease course and recover with no major complications, risk factors such as older age and underlying medical conditions such as hypertension, diabetes mellitus, and coronary heart disease can increase one's risk for more severe illness or death due to COVID-19.ⁱ Obstructive sleep apnea (OSA) is a chronic sleep-related breathing disorder in which the soft tissues of the upper airway partially or completely collapse during sleep. Thus, the individual experiences a brief episode of hypopnea (reduced airflow) or apnea (absent airflow) despite the continuous effort to breathe. Blood oxygen saturation may decrease, and these pauses in breathing often are accompanied by sudden awakenings which diminish sleep quality.ⁱⁱ While OSA is likely underdiagnosed, it is estimated to affect 12% of the US adult population.ⁱⁱⁱ It also tends to be more prevalent among older adults. Since OSA impairs sleep quality, affected individuals are at greater risk for impaired cognitive function, motor vehicle accidents, and cardiovascular disease.^{iv} COVID-19 and OSA have been shown to have shared risk factors, such as hypertension, diabetes, obesity, and older age. Patients with OSA have also been indicated to be at a higher risk for having a worse COVID-19 disease course, and OSA has been shown to be an independent risk factor for severe COVID-19.^v

OBJECTIVE

The objective of this observational study is to evaluate the characteristics and clinical courses of patients with a history of OSA who were hospitalized for COVID-19 at the University of Illinois Hospital (UIH).

RESULTS

Demographics

- 36 patients (15.1%) – diagnosed with OSA or OSA probable
- Ages – 24-89 years
- 50% male, 50% female
- Race – predominantly African American (61.1%)
- Ethnicity – predominantly non-Hispanic/Latino (63.9%)
- BMI – 18.5-61.7 kg/m²; mean and SD 40.1, ± 9.6

Signs and symptoms

- Cough – 75%
- Fever – 69.4%
- Dyspnea – 69.4%
- Respiratory distress – 22.2%
- Mean respiration rate (baseline) - 22.5, ± 5.5 breaths per minute
- Mean O2 sat level (baseline) - 92.5, ± 6.7%

- Most patients only required nasal cannula as their maximum level of oxygen support (see Fig. 1)
- Hypertension was the most prevalent comorbidity (see Fig. 2)
- Most patients recovered 20 days after testing positive and being admitted to the hospital for COVID-19, but 5.6% of patients died (see Fig. 3)

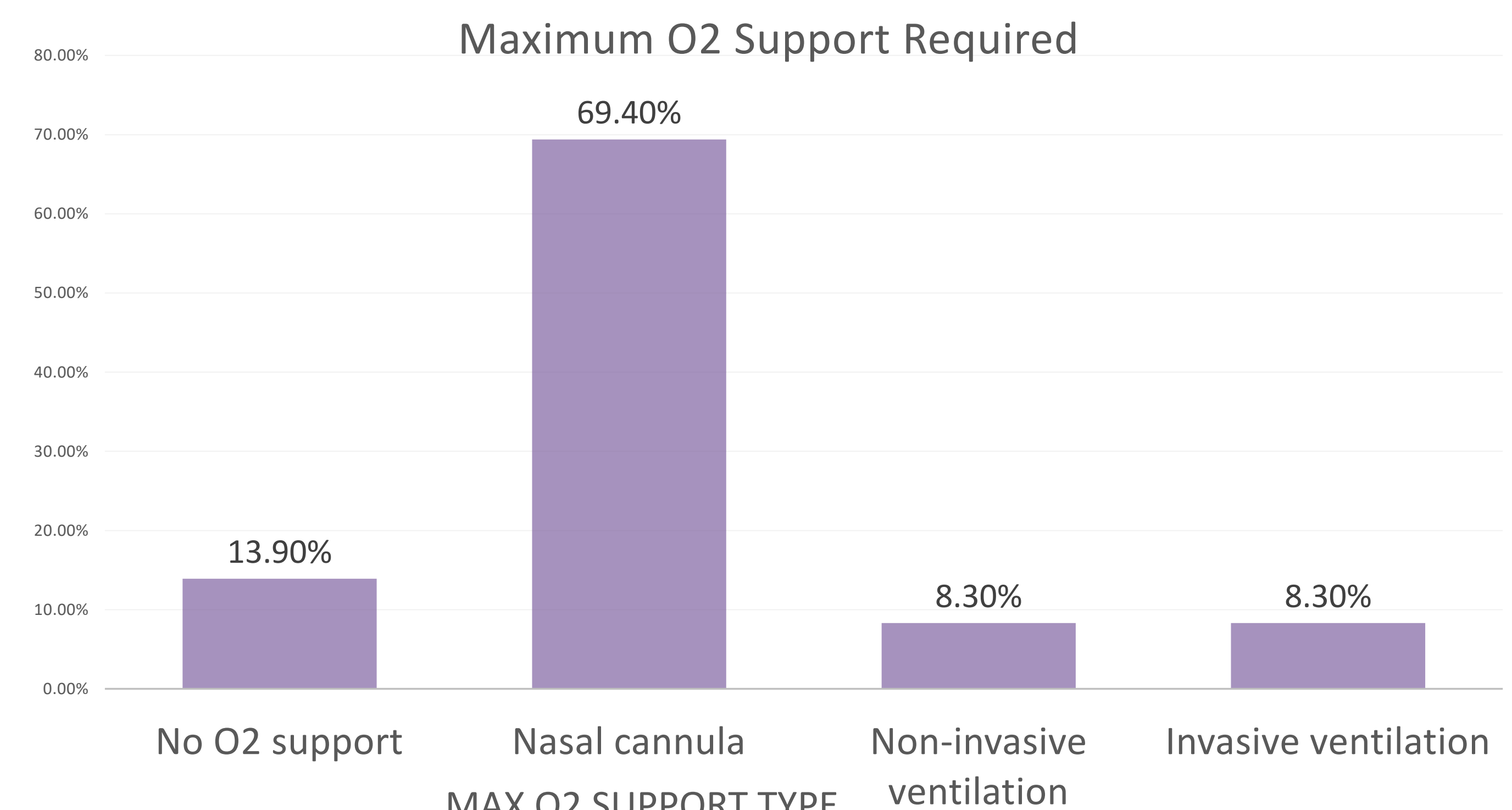


Fig. 1 – Maximum O2 support required during hospital admission

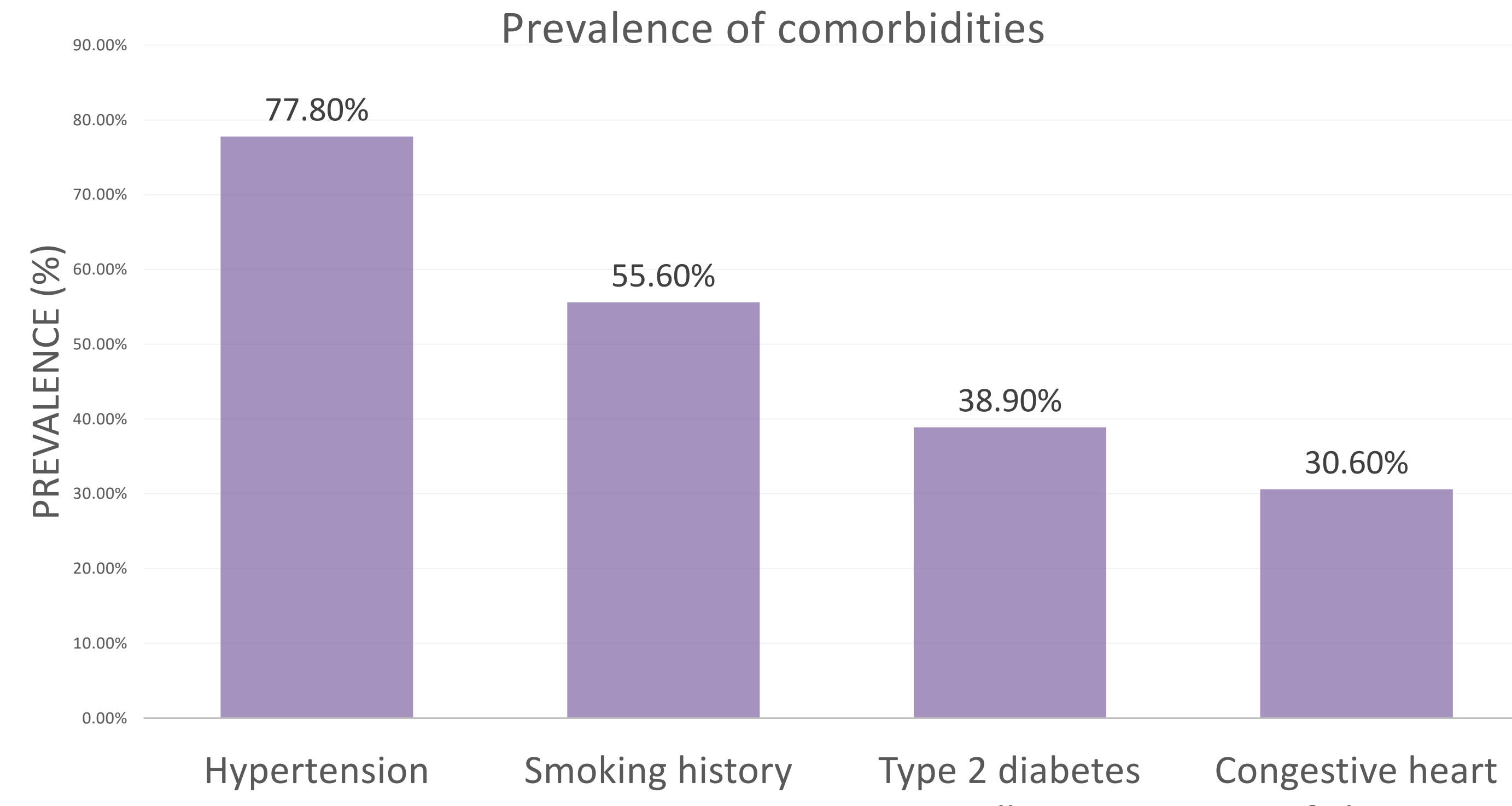


Fig. 2 – Prevalence of comorbidities

Last known status by Day 20	Percentage of sample
Recovered	41.7%
Inpatient recovering	30.6%
Discharged recovering	13.9%
Lost to follow-up	8.3%
Deceased	5.6%

Fig. 3 – Outcome at Day 20 after admission

CONCLUSION

There is a slightly higher prevalence of OSA among patients hospitalized for COVID-19 than in the general population, and they tend to have the comorbidities that are associated with increased risk for severe COVID-19. These patients also tended to display respiratory-related signs/symptoms that also were associated with severe COVID-19.

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