Assessing Clinical Variables Among the First 500 COVID-19 Patients in an Urban Emergency Department

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Introduction

COVID-19 proved to be an impactful and deadly virus in Louisiana, just as it was around the world. Given the ability of the virus to target multiple organ systems[1], many patients were hospitalized for days, or even weeks as their immune and organ systems fought the virus. In addition, certain comorbidities predisposed patients to worse health outcomes when infected with COVID-19, such as hypertension and diabetes[1]. It was vital that emergency medicine physicians considered these factors when determining whether to discharge or admit patients at University Medical Center in New Orleans (UMCNO).

Objectives

Our study seeks to characterize which patients in the Greater New Orleans area were discharged versus admitted to our hospital by examining patient demographics, O2 requirements, ventilatory interventions, comorbidities, and paO2 values. We hypothesize older patients with lower O2 saturations, lower paO2 values, increased need for ventilatory support, and certain comorbidities and demographics were more likely to be admitted to the hospital.

Methods

This is a retrospective chart review of the first 500 COVID-19 patients who tested positive in the emergency department (ED) at UMCNO between March 9, 2020 – March 24, 2020. Electronic Medical Records (EMR) were queried for patients meeting criteria. We collected basic demographics, disposition, insurance status, comorbidities, respiratory rates, O2 saturations, paO2, as well as respiratory interventions with final O2 saturations. All data was collected in REDCap. Analysis was carried out utilizing SAS 9.4 and Microsoft Excel.

Results

Table of disposition by sex

disposition(disposition)	sex(sex) Female	Male	Other	Total
Admission	69	57	0	126
	13.94	11.52	0.00	25.45
	54.76	45.24	0.00	
	24.82	26.39	0.00	
Discharge	209	159	1	369
	42.22	32.12	0.20	74.55
	56.64	43.09	0.27	
	75.18	73.61	100.00	
Total	278	216	1	495
	56.16	43.64	0.20	100.00

P= 0.8174, therefore there is no relationship

Age Mean	Minimum	Maximum	Std Deviation
48.642	18	98	15.349

Race	n=	Percent
Black/African American	436	88.08
White	24	4.85
Unknown/Not Reported	30	6.06

Frequency / Percent / Row Pct / Col Pct

Table of disposition by ethnicity

disposition(disposition)	ethnicity(ethnicity) Hispanic	Non-Hispanic	Unknown	Total
Admission	1	124	1	126
	0.20	25.05	0.20	25.45
	0.79	98.41	0.79	
	4.17	26.50	33.33	
Discharge	23	344	2	369
	4.65	69.49	0.40	74.55
	6.23	93.22	0.54	
	95.83	73.50	66.67	
Total	24	468	3	495
	4.85	94.55	0.61	100.00

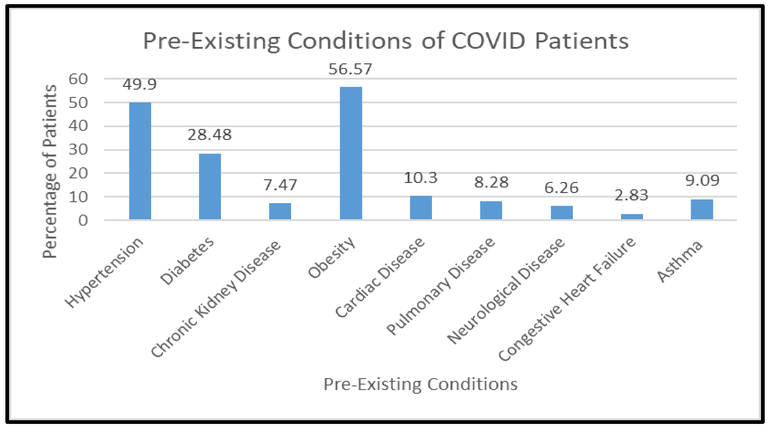
Frequency / Percent / Row Pct / Col Pct

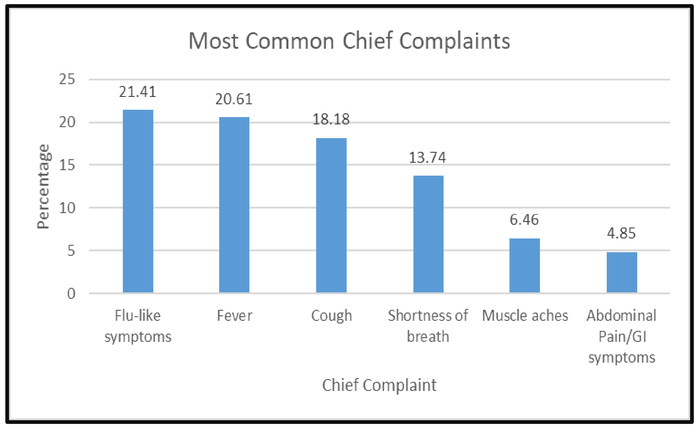
Table of disposition by homeless

disposition(disposition)	homeless(homeless) No	Yes	Total
Admission	126	0	126
	25.45	0.00	25.45
	100.00	0.00	
	25.61	0.00	
Discharge	366	3	369
	73.94	0.61	74.55
	99.19	0.81	
	74.39	100.00	

Discharge Status	n=	%
Home	435	93.15
Rehabilitation/Nursing Home	13	2.78
Death	19	4.07

Insurance	n=	%
Government	226	45.75
Private	203	41.09
Uninsured	63	12.75





Conclusions

Data analysis indicated 25% of COVID patients were admitted, and 73.4% were discharged. Of those patients discharged, 19 patients died. 3.8% of the first 500 COVID-19 patients died, and death rate was 3.8%, which is significantly higher than the national death rate of 1.6%[3]. 56.16% of the patients were female, with 209 females being discharged home and 69 being admitted. Regarding race demographics, 88.2% were Black, 4.8% were White, and 0.6% were biracial. 5% of. the patients identified as Hispanic. 0.4% were American Indian. The mean patient age was 48.642 years old. Most common chief complaints were flu-like symptoms (21.41%), fever (20.61%), cough (18.18%), and shortness of breath (13.74%). The average respiration rate of admitted patients was 21.2 b/min, while the rate for discharged patients was 18 b/min. There were 3 undomiciled patients out of 495 patients, or .6%, less than what was expected. Although initially, it was expected that pulmonary diseases would be a major comorbidity, the most common pre-existing conditions were obesity (56.57%), hypertension (49.9%), and diabetes (28.48%). Additional analysis and exploration is still being done to further assess associations between patient demographics and their respiratory measures and ultimate disposition of either admission or dischargement.

Future Directions

In terms of future directions, one of the results that we were surprised to see was the small amount of homeless patients that were diagnosed with COVID-19 in the emergency department. There were 3 undomiciled patients out of 495 patients, or .6%. As of 2018, the percentage of homeless people in New Orleans was 1188 per 393,292, or .3%[2], however the current percentage is much higher[3]. It would be of great benefit to look more into this and see if there were alternative shelters or means of treating homeless people during the COVID-19 pandemic that may have been put in place in order to relieve the load of the emergency department during the height of the pandemic. Respiratory management changed throughout the course of the COVID-19 pandemic as new information became available to physicians. This will also be analyzed in a later paper.

1. "ACE2 receptor polymorphism: Susceptibility to SARS-CoV-2, hypertension, multi-organ failure, and COVID-19 disease outcome". J Microbiol Immunol Infect. 2020
2. "Homelessness" https://nola.gov/homelessness
3. COVID Data Tracker. https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days