A PROSPECTIVE STUDY OF SYMPTOMATOLOGY AND EPIDEMIOLOGIC CHARACTERISTICS OF COVID 19 PATIENTS

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Abstract
Introduction: The world is witnessing one of the greatest challenges, COVID-19 pandemic caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2). Since its emergence in China, it took barely few months to become a pandemic and the virus has spread across the continent, infecting more than 3 million and killing more than 2 lakhs globally as of April 2020. In this context, our study aims to look into the symptomatology and epidemiological characteristics of COVID-19 patients of Andhra Pradesh.
Materials and Methods: The present study was a prospective, epidemiological study that has been performed patients of COVID-19 in Katuri Medical College, Guntur. The current study is a prospective observational study of epidemiological features and clinical manifestations of COVID-19 positive patients who presented themselves to this center during the outbreak of 2020-2021 from June 2020 to August 2021. COVID-19 patients were confirmed by RT-PCR (reverse transcription-polymerase chain reaction) using throat and nose swab specimens from the upper respiratory tract. The study variables were: gender, age, type of comorbidities, duration of hospitalization and final outcome (including death or survival). The epidemiological and clinical characteristics were obtained with data collection forms by patients.
Results: 271(66.66%) patients were either asymptomatic or had mild symptoms and 137 (33.33%) had moderate to severe symptoms. At the time of compilation of study 316 (77.57%) patients were discharged, 71 (17.51%) were still admitted, 10 (2.45%) were home isolated and 10 (2.45%) died. Out of total 89.21% patients did not had any comorbidity. The major comorbidities included diseases like, diabetes mellitus (2.81%), hypertension (1.59%) and pulmonary diseases (1.04%). Hospital stay for the patients ranged from less than 10 days to more than 30 days. 49% of patients were hospitalized for less than 10 days and 11 patients had to be hospitalized for 11 days.
Conclusion: The findings of our study emphasize the significant impact of old age and multiple comorbidities on the risk of mortality among COVID-19 patients, which are consistent the other studies. So it is suggested to take adequate preventative measures more seriously in the elderly patients. Also regarding medical care, it is vital to pay special attention to elderly patients who also have comorbidities.
Key Words: Corona virus, symptomatology, epidemiological, comorbidities.

INTRODUCTION

The world is witnessing one of the greatest challenges, COVID-19 pandemic caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Since its emergence in China, it took barely few months to become a pandemic and the virus has spread across the continent, infecting more than 3 million and killing more than 2 lakhs globally as of April 2020.[1]

As on 5th June 2020, Globally 6416828 cases and 382,867 deaths were reported due to corona virus. India had 110960 active cases and 6348 death due to corona virus. In Rajasthan, 9862 cases and 213 deaths were attributed to COVID- 19 till 5th June 2020.[2]

The demeanor of SARS CoV-2 in different parts of the world heedless of the technologic, scientific and medical advancements of the nations has been an affair of great discussion.[3] The diversity of symptoms of the disease ranging from no or mild symptoms to severe pneumonia and other complications, makes it a topic of extensive research.[4] With umpteen research works on the characteristics of the COVID19 from across the world, it is critical to study the epidemiological and clinical pattern in the State. A state level inspection of the case scenario is imperative in planning resources and escalating preparedness.[5] In this context, our study aims to look into the symptomatology and epidemiological characteristics of COVID-19 patients of Andhra Pradesh.

MATERIALS AND METHODS
Study design: A prospective, epidemiological study.
Study location: Katuri Medical College, Guntur.
Study duration: June 2020 to August 2021.
Sample size: 408 patients
The present study was a prospective, epidemiological study that has been performed patients of COVID-19 in Katuri Medical College, Guntur.

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Statistical analysis: Descriptive analyses of the variables were expressed as mean (±Standard Deviation=SD), median (with an interquartile range =IQR=Q1-Q3), or number (%).The analyses were based on non- missing data, and missing data were not imputed. The age and sex distribution were examined and relevant charts were drawn. Sex ratio (male to female) and the case fatality rate (CFR) were calculated.

RESULTS
By 26th June 2020, 408 patients confirmed COVID-19 in Katuri Medical College, Guntur were enrolled in this study. The mean of age was 34.93±17.61 years and the median of age was 32 years. The majority of cases were in the age group of 26 to 50 years. Also, most cases (63.42%) were male. The male to female ratio was 1.73:1.

271(66.66%) patients were either asymptomatic or had mild symptoms and 137 (33.33%) had moderate to severe symptoms. At the time of compilation of study 316 (77.57%) patients were discharged, 71 (17.51%) were still admitted, 10 (2.45%) were home isolated and 10 (2.45%) died. Out of total 89.21% patients did not had any comorbidity. The major comorbidities included diseases like, diabetes mellitus (2.81%), hypertension (1.59%) and pulmonary diseases (1.04%). Hospital stay for the patients ranged from less than 10 days to

more than 30 days. 49% of patients were hospitalized for less than 10 days and 11 patients had to be hospitalized for 11 days (Table 1).

Variable	N (%)
Age (years)	
0-25	140(34.25)
26-50	191(46.81)
>50	77 (18.94)

Table 1: Age distribution

Gender	N (%)
Male	258 (63.42)
Female	150 (36.58)

Table 2: Gender distribution

Disease category	N (%)
Symptomatic (Moderate to severe)	**136 (33.33)**
Asymptomatic (No or mild symptoms)	**272 (66.66)**

Table 3: Disease category

Duration in days	N (%)
<10	326 (80.02)
10-19	71 (17.52)
20-30	17 (4.22)
>30	3 (0.77)

Table 4: Duration in days

Variable		Frequency (%)	Death	CFR
Overall		408	10	2.45%
Age (years)	0-25	140 (34.25)	0	0
	26-50	191 (46.81)	3	1.43%
	>50	77 (18.94)	7	8.73%
Gender	Male	258 (62.42)	6	2.31%
	Female	150 (36.58)	4	2.68%
Comorbidity				
	None	364 (89.21)	4	0.96%
	Multiple comorbidities	11 (2.81)	4	30.43%
	Diabetes Mellitus	10 (2.38)	1	11.11%
	Hypertension	6(1.59)	1	8.7%
	Pulmonary (COPD, Asthma, TB)	4(1.04)	0	0
	Pregnancy	**5 (1.10)**	**0**	**0**
	CNS disease	**2 (0.61)**	**0**	**0**
	Thyroid disease	**1 (0.36)**	**0**	**0**
	Cardiac	**1 (0.30)**	**0**	**0**

	disease			
	Other(post surgery)	**1 (0.06)**	**0**	**0**

Table 5: Epidemiological factors on mortality of Covid-19 patients

Comorbidity	Outcome		P value
	Death (%)	**Discharge (%)**	
None	4 (40)	283 (89.49)	0.001
Multiple comorbidities	4 (40)	7(2.21)	0.001
Pulmonary disease	0 (0)	2(0.63)	0.002
Hepatic disease	0 (0)	0 (0)	0.001
CNS disease	0 (0)	2(0.63)	0.001
Renal disease	0 (0)	0 (0)	0.001
Diabetes mellitus	1 (10)	9 (2.92)	0.002
Cardiac disease	0 (0)	1 (0.31)	0.001
hypertension	1(10)	5(1.57)	0.001
Pregnancy	0 (0)	5(1.50)	0.001
Thyroid disease	0 (0)	1 (0.31)	0.003
Total	10	315 (100)	--

Table 6: Association of comorbidity with outcome

DISCUSSION

In our study male patients (63.42%) were more than female patients (36.58%), similar to than reported by Sun, Chen, Huang, Wang which reported male predominance of 73%. MERS-CoV and SARS-CoV infections were also found to infect more men than women.[6]

This male predominance may be attributed to the fact that males are associated with more public exposure as compared to females as more than half i.e. about 66.66% of patients were asymptomatic or had mild symptoms. Another important factor that could influence the less susceptibility to infection is women is the X chromosome and the sex hormones which are known to play vital role in innate and adaptive immunity.[7]

Data suggests that 66.66% patients had no or mild symptoms and moderate to severe symptoms were found in 33.33%. Our data suggesting asymptomatic patients is much more than that reported by Gupta et al who reported asymptomatic cases as 42.[8]

Our estimates are consistent with previous studies, that fever is the most common symptom and most patients have multiple symptoms like cough, fever, fatigue, myalgia and sore throat. The most common comorbidity was diabetes (2.38%) and hypertension (1.59%). Besides this diabetes, renal diseases, cardiac diseases were also found as comorbid diseases. A recently published systematic review and meta-analysis reports hypertension and diabetes as most common diseases.

Our study reported overall case fatality rate as 2.45%. Most of the studies have reported case fatality rate between 2.5% to 3%.[9]
The case fatality rate in hospitalized patients was 13.98%. This finding is not unusual as the non-hospitalized patients were in better health conditions than the hospitalized patients. In a

recent meta-analysis, based on compilation of seven studies, the case fatality rate for hospitalized patients were reported as 13%.[10]

CONCLUSION

The findings of our study emphasize the significant impact of old age and multiple comorbidities on the risk of mortality among COVID-19 patients, which are consistent the other studies. So it is suggested to take adequate preventative measures more seriously in the elderly patients. Also regarding medical care, it is vital to pay special attention to elderly patients who also have comorbidities.

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