

Original Research Paper**Profile of Covid-19 Patients Admitted In an ICU of a Tertiary Care Hospital during the first wave****Authors:****¹Dr.Pandrakula Sandhya, ²Dr.Avvaru Krishnaveni****1. Final year Postgraduate, Community Medicine, GMC, Srikakulam**2. Professor & H.O.D, Community Medicine, GMC, Srikakulam*

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Article Received: 23-08-2022**Revised:**13-09-2022**Accepted:** 03-10-2022**ABSTRACT:**

Context: The first case of coronavirus disease was reported in India on 30th January 2020, and since then India has reported over 27 million cases and more than 3,00,000 deaths. The peak of SARS-CoV-2 infection started to decrease in September 2020. India witnessed a massive second surge of COVID-19 cases since March 2021, with different parts of the country in different phases of the surge.⁴ The understanding of outcome in the intensive care unit (ICU) for COVID-19 remains limited. **Aims:** 1. To describe the demographic and clinical profile of COVID-19 patients admitted in ICU. 2. To determine the outcome of covid-19 patients admitted in the ICU. **Methodology:** It was a record-based cross-sectional study conducted among COVID-19 patients who were admitted in the ICU of Government General Hospital, Srikakulam from the month of September to November 2020. Data of 411 ICU patients was analyzed using Microsoft excel. **Results:** Out of 411 study population, 61% (n=249) were males; with a mean age of 57 years; 48% were having co-morbidities, and diabetes being the most common. Breathlessness was the most common (>60%) presenting symptom. Patients maintained on non-invasive ventilation mainly by continuous positive airway pressure (CPAP), high flow nasal oxygen (HFNO) and oxygen breathing masks were 45%, 44%, and 11% respectively and patients discharged home were 90.5%. **Conclusion:** Mortality and morbidity was more among elderly patients and those who were having comorbid conditions.

Keywords : COVID 19 - ICU patients, Comorbidities, Respiratory support**INTRODUCTION:**

Coronaviruses are a large family of viruses, that belongs to coronaviridae family. They usually cause mild to moderate upper respiratory tract infections like the common cold and have emerged from animal reservoirs over the past two decades to cause serious and widespread infections and death.¹ Coronavirus disease has emerged as a global pandemic and the disease spread to more than 200 countries.² Although in most cases the coronavirus disease is mild or asymptomatic, a subset of patients developed moderate to severe COVID-19 pneumonia requiring intensive care unit (ICU) admission.³ As an unusually high number of cases had required hospitalization, emergency departments and ICUs have been strained. The high caseload and the high proportion of patients requiring respiratory support have placed unrivaled demand on intensive care unit (ICU) services.⁵ Intensive care units (ICU) had a pivotal role in managing the sickest of these patients, but mortality was high in this group.⁶ So this study has been conducted to determine the various outcomes of covid-19 patients admitted in the ICU.

METHODOLOGY:

Study Design: The present study was a record-based Cross-sectional study.

Study Setting: Covid command control room of Government Medical College in Srikakulam.

Study population: Covid patients who were admitted in ICU at Government General Hospital, Srikakulam.

Study Period: From 1st September to 30th November 2020.

Study sample: All the 411 cases who were admitted during the study period in COVID ICU block was taken as study sample.

Study variables: Collected data included patient demographics, comorbidities, symptoms preceding ICU admission, medication administered during ICU stay, type of ventilation, discharge destination and mortality. Information on co-morbid conditions was recorded. Clinical outcomes were available for all patients.

Data collection: Data obtained from the electronic medical records available in the COVID Command Control Room and Medical records section. Permissions were obtained from hospital authorities.

Data analysis: The data was entered and analyzed using Microsoft excel and appropriate statistical tests were applied.

Out of 411 patients who were admitted into the ICU, 61% were males and 39% were females. The age of the patients ranged from 10 - 86 years with a mean age of 57 years. Almost 40% of the population were in the age group of 51 - 70 years.

RESULTS:

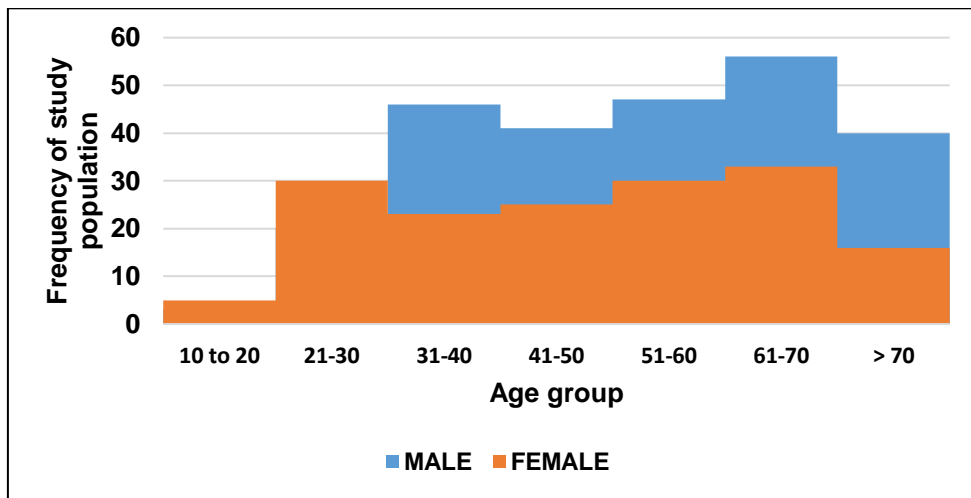


Figure1: Age and gender wise distribution of the study population

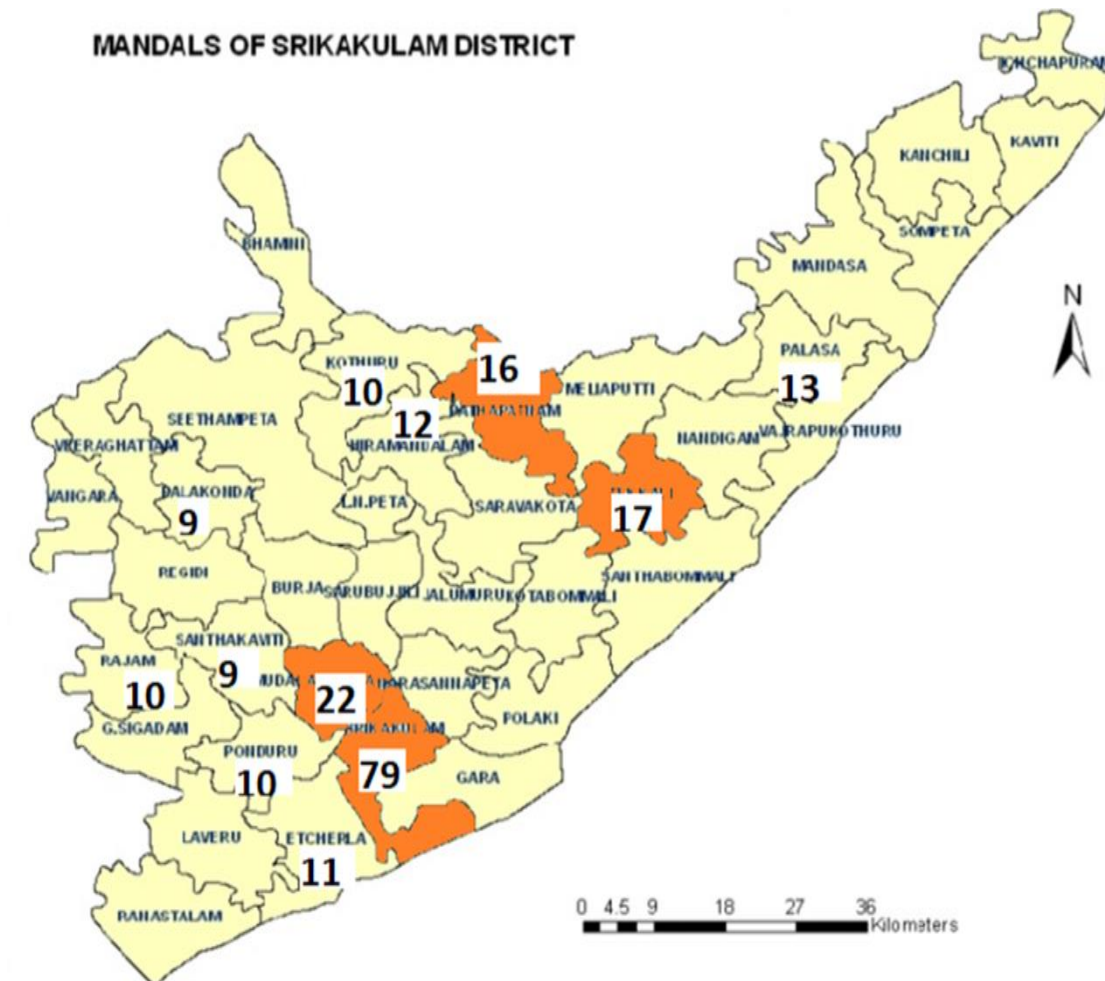


Figure 2: Spotmap showing mandal-wise distribution of the study population
 Study population from rural and urban areas were 55.5% and 45.5% respectively.

Table: 1. Distribution of the cases based on symptoms

SYMPTOMS	NUMBER OF PATIENTS n (%)
Breathlessness+ Cough	224 (54.5%)
Fever+Cough+Breathlessness	104 (25.3%)
Fever+Breathlessness	54 (13.13%)
Others	29 (7.16%)

Breathlessness with cough (54.5%) was the most common presenting symptom. Fever, cough and breathlessness was seen in 25.3% of the cases, and 13.13% of the cases presented with fever and

breathlessness. Only a few (7.17%) presented with minor symptoms such as weakness, body pains, and joint pains.

Table: 2. Distribution of ICU patients based on onset of the symptoms at the time of ICU admission

Duration of Symptoms	No of patients n (%)
< 5 days	307 (74.7%)
> 5 days	104 (25.3%)

Nearly 75% of the patients got admitted into the ICU within 5 days of the onset of the symptoms.

Table: 3. Distribution of ICU patients based on the duration of ICU stay

Duration of ICU stay	Number of patients n (%)
0 - 7 days	223 (54.27%)
8 - 14 days	88 (21.41%)
15 - 21 days	15 (3.64%)
> 22 days	85 (20.68%)

Nearly one-fifth of the patients stayed for more than 3 weeks in the ICU

Table 4. Distribution of ICU cases based on co-morbidities

COMORBIDITY	MALE N %	FEMALE N %	TOTAL N %
Hypertension(HTN)	30 (21%)	15 (25%)	45 (22.5%)
Diabetes Mellitus(DM)	27 (19%)	06 (10%)	33 (16.5%)
HTN+DM	42 (30%)	24 (40%)	66 (33%)
Chronic Kidney Disease (CKD)	18 (13%)	06 (10%)	24 (12%)
Bronchial Asthma	06 (4.3%)	03 (5%)	09 (4.5%)
Chronic Obstructive Pulmonary Disease (COPD)	05 (4%)	01 (1.6%)	06 (03%)
Pulmonary Tuberculosis	05 (4%)	02 (3.4%)	07 (3.5%)
Others	07 (4.7%)	03 (5%)	10 (5%)
TOTAL	140 (100%)	60 (100%)	200 (100%)

Almost half of the patients admitted in the ICU had one of the comorbidities such as hypertension, diabetes, bronchial asthma, COPD, CKD and tuberculosis. Patients with only Hypertension were 22.5% and

diabetes alone were 16.5%. Both hypertension and diabetes were present in 33% of the cases. CKD was present in 12% of the cases.

Table 5. Mode of oxygenation in the patients admitted in ICU Block.

MODEOF OXYGENATION	NUMBER OF PATIENTS n (%)
CPAP	185 (45%)
HFNO	181(44%)
Oxygen Breathing Masks	45(11%)
TOTAL	411(100%)

Oxygen therapy was the main mode of life support in COVID - 19 disease as viral pneumonia gradually leads to progressive hypoxia. Nearly 45% of the

patients were on CPAP, 44% of them were on HFNO and the remaining patients were supported with oxygen breathing masks.

Table 6. The outcome of the Covid-19 ICU patients.

OUTCOME	NUMBER OF PATIENTS (n,%)
Discharge	372 (90.5%)
Deaths	39 (9.5%)
Total patients admitted	411 (100%)

Majority (90.5%) of the patients were fully recovered & discharged and about 9.5% were death.

Table 7. Age and gender-wise distribution of study participants according to their outcome

VARIABLE		RECOVERED	DEATH	CHI-SQUARE TEST (P VALUE)
Age	<50	187 (97%)	6 (3%)	0.00001
	>50	185 (85%)	33 (15%)	
Gender	Male	238 (96%)	28 (4%)	0.00001
	Female	134 (83%)	11 (17%)	

Young patients (<50 years) had recovered better when compared with those more than 50 years and it was found to be highly statistically significant (p-value <

0.05). Recovery was better in women (83%) than men, and this was found to be highly statistically significant (p-value < 0.05).

Table 8: Distribution of ICU patients according to their outcome

VARIABLE		SURVIVED	DEATH	CHI-SQUARE TEST (P VALUE)
Onset of the symptoms	< 5 days	274 (74%)	33 (85%)	0.065
	> 5 days	98 (26%)	6 (15%)	

Mode of ICU admission	Directly admitted into the ICU	261 (70%)	28 (71%)	0.045
	Referred to ICU	111 (30%)	11 (29%)	
Duration of ICU stay	< 7 days	133 (36%)	24 (64%)	0.001
	> 7 days	239 (64%)	15 (36%)	
Comorbidity	Yes	177 (45.5%)	23 (59%)	0.023
	No	195 (54.5%)	16 (41%)	

Nearly 74% of the recovered patients were admitted within 5 days of the onset of symptoms and 70% of the recovered patients were directly admitted into the ICU. Deaths were high in patients stayed less than 1 week in ICU and this may be due to delay in the admission from date of symptoms. 64% of the recovered patients had stayed more than 7 days in the ICU. Deaths were more (59%) among patients with comorbidities when compared to the patients without comorbidities and it was found to be statistically significant with p value < 0.05.

DISCUSSION:

In the present study, we found elderly male patients were more commonly affected with moderate to severe pneumonia. In the present study majority (61%) were males. Similar findings were observed in the studies done by Vaishali Gupte et al, Sukhyanti Kerai et al, Ekadashi Rajini et al and Xiabo Yang et al., who reported that 67.4%, 62.2%, 66.5%, 58.8% were males respectively. The reason may be the slightly larger male population working in areas that involve potential exposure to the disease and more males brought to the hospital. Elderly patients were commonly affected by severe pneumonia due to an age-dependent decline in immunity. We observed that in patients with age > 50 years, the presence of comorbidities was the predictors of mortality with severe COVID-19 pneumonia. Old age is an established risk factor for various infections, including

viral infections, and by far the most significant predictor of mortality in COVID-19 pneumonia. Comorbid conditions like diabetes, hypertension, COPD, bronchial asthma, chronic kidney disease, tuberculosis, and increasing age were significantly associated with admission to hospital and mortality. Most of the deaths occurred in patients with comorbidities; mainly hypertension and diabetes. Half of the patients admitted in the ICU had atleast one comorbid condition. Similar results were reported by Verma R et al (52.3%) and Giacomo Graselli et al (60.5%). It was more than 50% in studies conducted by Sukhyanti Kerai et al (71.6%) and Deependra K Rai et al (70.2%). The death rate in the current study was 9.5%. Mortality was more among patients with comorbidities. Similar results were reported by Vaishali Gupte (6.77%) and by Verma R et al (14.16%) and it was less when compared to the studies done by F Ciceri et al (23.1%), and Jerney A W Gold et al,(23.1%). The discharge rate was 90.5% in the present study and it was high when compared to the studies done in europe by F Ciceri et al(71%), and Jerney A W Gold et al,(79.%).

CONCLUSION:

In the present study, it was found that elderly (>50) age, male gender and presence of co-morbid conditions like hypertension, diabetes and bronchial asthma were found to be the main predictors of mortality in patients with severe covid -19 infection. The symptomatology has remained focused mainly on

respiratory system was breathlessness in high proportions. 89% of the total ICU patients supported with CPAP and HFNO modes of oxygen supplementation. Out of 411 patients 90.5% were discharged and 9.5% were deceased.

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