

Original Research Paper

ASSESSMENT OF OUTCOME AND RISK FACTORS FOR MORBIDITY AND MORTALITY IN COVID ICU PATIENTS- A RETROSPECTIVE STUDY.

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Article Received: 17-09-2022

Revised: 07-10-2022

Accepted: 27-10-2022

ABSTRACT:

Objectives: To determine the morbidity and mortality of patients with severe COVID-19 in the intensive care unit (ICU) in relation to age, gender, co-morbidities, mode of oxygen delivery, and length of stay (LOS). **Methodology:** This was a retrospective study of patients admitted to Sri Venkateshwara Medical college hospital COVID ICU between April, 2021 to July 2021. From a common database prepared for COVID-19, we retrieved the relevant data and compared the association of age, sex, comorbidities, mode of oxygen delivery and length of ICU stay with morbidity and mortality in COVID ICU patients. Data was entered in Microsoft excel sheet and analysis done by SPSS version 23.0. **Result:** Total of 100 patients were admitted in COVID ICU during the study period. The mean age of study participants were observed as 55.79. Among study participants 86% were more than 40 years of age. Among deceased patients the maximum of 48% accounts between age 41-60 (due to associated co morbidities) and there was significant association found between age and clinical outcome (P value < 0.01). Patients with comorbidities accounted for 76% of mortality showing significant association between comorbidities and clinical outcome. Mortality was significantly higher (100%) for patients on IMV as compared to those on NIV (53%) and there was significant association found between mode of oxygen delivery and clinical outcome (P value 0.005). Patients whose length of hospital stay of >10 days in ICU had higher mortality (100%) and there was significant association found between length of stay and clinical outcome. **Conclusion:** The overall mortality in the present study was 78 %. Patients aged above 40 years associated with comorbidities had high morbidity and mortality. Mortality was high for patients on IMV. Longer ICU stay of more than 10 days was associated with higher mortality.

Keywords: Covid ICU, Morality, Morbidity, Risk Factors, Severe Covid Pneumonia

BACKGROUND & INTRODUCTION:

The mortality of COVID-19 pneumonia is higher than other viral pneumonia (1). Studies have described increased ICU mortality in patients with severe COVID pneumonia who require invasive mechanical ventilation.(1).Multiple factors influence COVID ICU mortality. These include the severity of illness, gender, age, comorbid conditions, mode of ventilatory support (2). After the outbreak, a large number of patients requiring respiratory support placed an unprecedented demand for intensive care services (3). This study is to describe the clinical characteristics and outcomes of severe COVID pneumonia patients admitted to ICU in

sri Venkateshwara medical college and hospital Puducherry.

AIM & OBJECTIVE:

To determine the morbidity and mortality of patients with severe COVID-19 in the intensive care unit (ICU) in relation to age, gender, co-morbidities, mode of oxygen delivery, and length of stay (LOS).

METHODOLOGY:

This is a retrospective study of patients admitted to Sri Venkateshwaraa Medical college hospital COVID ICU between April, 2021 to July 2021. From a common

database prepared for COVID-19, we retrieved the relevant data and compared the association of age, sex, comorbidities, mode of oxygen delivery and length of ICU stay with morbidity and mortality in COVID ICU patients. Data was entered in Microsoft excel sheet and analysis done by SPSS version 23.0. The chi-square test were used to determine the statistical significance of age, gender, co-morbidities, mode of oxygen delivery, and length of stay (LOS) in COVID ICU patients.

Sampling technique:

Universal sampling method was used. Based on the inclusion and exclusion criteria, patients were being enrolled in the studies.

Inclusion criteria: severe COVID pneumonia patients admitted in COVID ICU.

Exclusion criteria: mild and moderate COVID pneumonia.

RESULTS:

The mean age of study participants were observed as 55.79. Among study participants two-third were more than 40 years which accounts for 86%.

Table 1: Association of study participants age with outcome

Age	Alive (%)	Death (%)	Chi-square	P value
<40	11(14)	3(14)	62.283	<0.01
41-60	9(57)	48(57)		
61-80	2(24)	22(24)		
>80	0	5(5)		

Among deceased patients the maximum of 48% accounts between age 41-60 (due to associated co morbidities) and there was significant association found between age and clinical outcome.

Table 2: Association of study participants comorbidities with outcome.

Comorbidities	Alive (%)	Death (%)	Chi-square	P-value
No comorbidities	19(21)	2(21)	78.432	<0.01
Less than two (≤ 2)	3(61)	58(61)		
More than two (> 2)	0	18(18)		

Patients with comorbidities accounted for 76% of mortality showing significant association between comorbidities and clinical outcome.

Table 3: Association of study participants mode of oxygen delivery with outcome.

Mode of oxygen delivery	Alive (%)	Death (%)	Chi-square	P-value
IMV	0	25(25)	10.662	0.005
CPAP	15(57)	42(57)		
HFNO	7(18)	11(18)		

Among diseased patients mortality was significantly higher (100%) for patients on IMV as compared to those on NIV (53%) and there was significant association found between mode of oxygen delivery and clinical outcome.

Table 4: Association of study participants length of hospital stay with outcome.

Length of hospital stay	Alive (%)	Death (%)	Chi square	P-value
≤ 10 days	22(77)	55(77)	38.647	0.005
>10 days	0	23(23)		

Patients whose length of hospital stay of >10 days in ICU had higher mortality (100%) and there was significant association found between length of stay and clinical outcome.

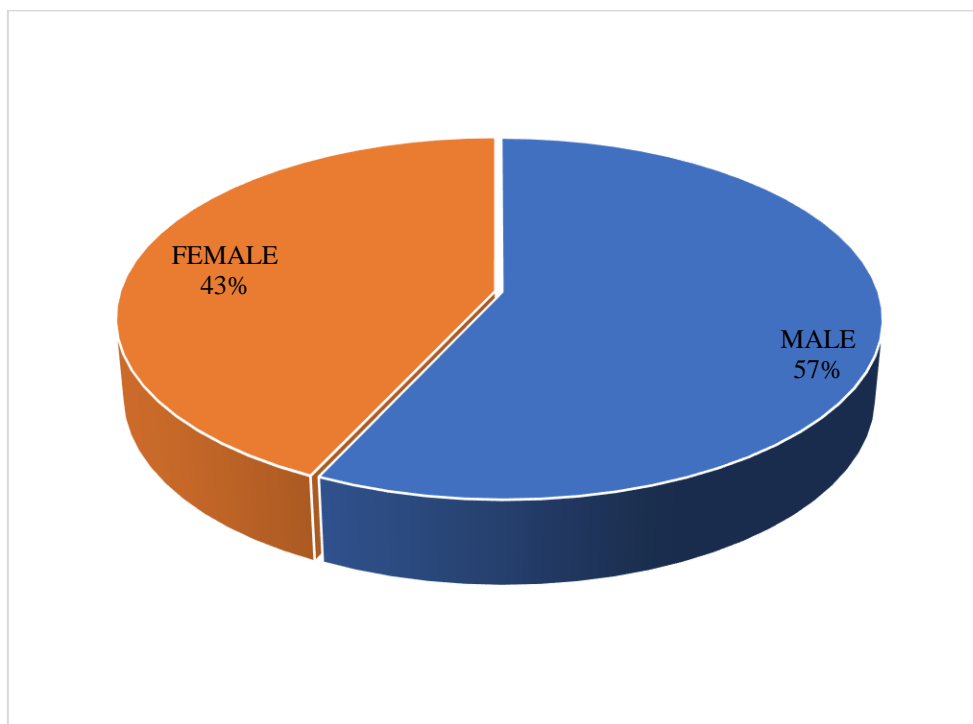


Figure 1: Frequency distribution of study participants sex

Among the 100 study participants 57% were male and 43% were female, there was no significant association was found between sex and outcome. About 90% of the participants had comorbidity. Among all the observed co-morbidity the most common comorbidity observed was Diabetes Mellitus(DM) and Hypertension(HTN).About 61% of patients had both DM and HTN .The average length of stay(LOS) in ICU was 9.4 ± 2.9 days and 72% patients spent less than 10 days in the ICU.

DISCUSSION:

In this study patients aged above 40 years associated with comorbid conditions have been reported to had worst outcome in COVID 19.M.T.H.M.henkens has studied about association age and comorbidities in mortality of COVID 19 patients in Netherland and found out that elderly patients with comorbidities had higher mortality(4).Diabetes mellitus was leading comorbid condition (73%),might be due to high

prevalence in India (74.2 millions in 2021).In a study conducted by Larry E miller had found that mortality was higher in diabetes mellitus patients (5).Patient who required IMV and prolonged hospital stay had higher mortality , might be due to secondary hospital acquired infections. In a study conducted by Grasselli G patients who required IMV and prolonged hospital stay had higher mortality (6). The overall mortality was 78% in the present study. Being a developing country, the mortality rate is comparably higher than the developed countries like united states, China. The reason for the difference in survival compared to the developed countries could be due to timely preparedness of health system for the pandemic and sufficient resources. Late presentation to the hospital due to illiteracy, false belief had also increased mortality.

CONCLUSION:

The overall mortality in the present study was 78%. Patients aged above 40 years associated with comorbidities had high morbidity and mortality. Mortality was high for patients on IMV. Longer ICU stay of more than 10 days was associated with higher mortality.

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