



SHIFTING TREND IN INTENSIVE CARE UNIT ADMISSIONS WITH COVID -19 PANDEMIC IN NORTH INDIA

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ABSTRACT **Introduction:** The sequelae of coronavirus disease 2019 (COVID – 19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV 2) have influenced all stages of health services. This pandemic is accepted as viral pneumonia pandemic not a simple flu, therefore intensive care unit (ICU) admission, follow up, and management of the critically ill patients with COVID – 19 is essential. Patient with respiratory complaints has risen and routine patient had difficulty seeking healthcare facilities due to COVID – 19 restrictions and there is negligible data on change in the pattern of admission due to COVID – 19, therefore in the present study we aimed to describe the impact of COVID – 19 on indications of ICU admission over a period of time

Material and Methods: An observational study was conducted over a period of 18 months, and the data on indications of ICU admission before COVID – 19 outbreak was obtained from MRD (Medical Record Department) and after COVID – 19 outbreak was from the ICU, of a tertiary care hospital, and all the data was tabulated in summary sheet.

Results: A total 257 cases were reviewed during the study period, out of which 50.19% were males and 49.8% were females. The mean age of male were 57 years and mean age of female were 54 years. Most common indication which warranted ICU admission before COVID – 19 outbreak was due to various conditions (33.87 %) whereas after COVID – 19 outbreak was due to Lab confirmed COVID – 19 positive patients (54.88%).

Conclusion: This study gave an outline of shift in pattern of indications in ICU admission during COVID – 19 pandemic which will help in better patient care and utilization of healthcare facilities.

KEYWORDS : COVID – 10, Intensive Care Unit, Medical Record Department

INTRODUCTION:

The sequelae of coronavirus disease 2019 (COVID – 19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV 2) which was began in Wuhan region of China and span all over the world, have influenced all stages of health services. Subsequently, World Health Organisation (WHO) has declared pandemic for this virus. This pandemic is accepted as viral pneumonia pandemic not a simple flu, therefore intensive care unit (ICU) admission, follow up, and management of the critically ill patients with COVID – 19 is essential. (1) In some patients the immune response triggered by SARS-CoV-2 is variable, presenting an acute respiratory distress syndrome which in many cases requires ICU admission. The limitation of ICU beds has been one of the weigh down in the management around the world, therefore clinical plan of action to avoid admission are needed, nevertheless it is necessary. (2)

It is vital to identify patients at the highest risk of morbidity and mortality to ensure that adequate advice is given to those most at risk, and current knowledge about the novel virus is rapidly evolving, with new variant emerging day by day along with rise in prevalence of comorbidities like diabetes, hypertension, chronic obstructive pulmonary disease, it has become important to do systemic reviews as more evidence becomes available. (3) Ongoing pandemic has significant impact on indications which is responsible for ICU admission, whereas patient with respiratory complaints has risen and routine patient had difficulty seeking healthcare facilities due to COVID – 19 restrictions. Since there is negligible data on change in the pattern of admission due to COVID – 19, therefore in the present study we aimed to describe the impact of COVID – 19 on indications of ICU admission over a period of time

MATERIAL AND METHODS:

Study Design: The study was conducted in the Department of Pharmacology, RUHS College of Medical Sciences (CMS); General Intensive Care Unit (ICU) of Govt. R.D.B.P. Jaipuria Hospital and Medical Record department of Govt. R.D.B.P. Jaipuria Hospital, Jaipur, Rajasthan.

An observational study was conducted over a period of 18 months from January 2020 to June 2021. All the patients of either sex who are

admitted in general intensive care unit during the study period were included whereas patients who are less than 18 years of age were excluded. Ethical approval (RUHS-CMS/Ethics Comm./2020/12) was taken from the Institutional Ethical Committee after explaining the aim and objective of the study.

Study Method

The present study involved 257 cases. The study was divided into MRD (Medical record department) group and ICU (Intensive Care Unit) group. All the treating doctors were explained clearly about the nature and purpose of the study in the language they understand, and a written informed consent was obtained from them. The study was conducted in 2 phases In phase 1 six months data was collected from medical record department as per the study Performa which was before outbreak of COVID - 19. In phase 2 of 6 months, all the data similar to phase 1 noted as per the study Performa from the doctor case sheet's, change in the pattern of indication was observed and analysed separately for phase 1 and phase 2, data was recorded in summary sheets.

RESULT:

A total of 257 cases were reviewed during the study period, out of which 50.19% were male and 49.80% were females. The mean age of male were 57 years whereas the mean age of female were 54 years. The most common indication which warranted admission in Intensive care unit before COVID – 19 outbreak belongs to other group (33.87%) where patient admitted with various condition's with indication like Pulmonary tuberculosis, Malaria, Chronic kidney disease and Viral fever etc. followed by patients with Chronic obstructive pulmonary disease with comorbidities (21.77 %) and patient's with Type 2 diabetes mellitus with comorbidities (8.06%) (Table no. 1)

Table no. 1: Indication's for Intensive Care Unit admission before COVID – 19 outbreak

Row Label	Indication for admission	Percentage
Patient ICU admission data from	Chronic Obstructive Pulmonary disease	4.03 %
	Chronic Obstructive Pulmonary disease with comorbidities	21.77 %
	Diabetic ketoacidosis	1.61 %

medical record department	Diabetic ketoacidosis with comorbidities	7.25 %
	Type 2 diabetes mellitus	0.8 %
	Type 2 diabetes mellitus with comorbidities	8.06 %
	Hypertension with comorbidities	7.25 %
	Lower respiratory tract infection	1.61 %
	Lower respiratory tract infection with comorbidities	3.22 %
	Anaemia with comorbidities	5.64 %
	Congestive heart failure with comorbidities	4.83 %
	Others	33.87 %

whereas after COVID – 19 outbreak, most common indication which is responsible for admission in Intensive care unit was Lab confirmed COVID – 19 positive patients (54.88 %) followed by Lab confirmed COVID – 19 positive patients with comorbidities (18.79 %) and Chronic obstructive pulmonary disease with comorbidities (12.03 %). (Table no. 2)

Table no. 2: Indication's for Intensive Care Unit admission after COVID – 19 outbreak

Row Label	Indication for admission	Percentage
Data from medical intensive care unit	Chronic obstructive pulmonary disease	3.75 %
	Chronic obstructive pulmonary disease with comorbidities	12.03 %
	Lab confirmed COVID – 19 positive	54.88 %
	Lab confirmed COVID – 19 positive with comorbidities	18.79 %
	Type 2 diabetes mellitus with comorbidities	2.25 %
	Others	8.27 %

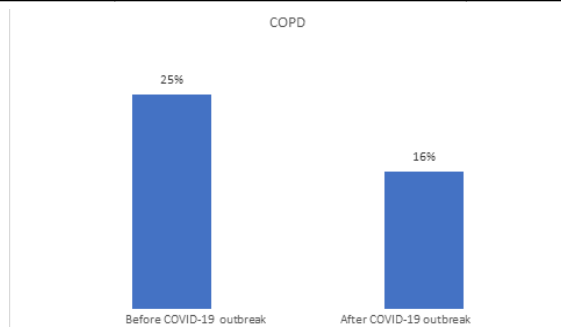


Figure no. 1: Percentage of patient with chronic obstructive pulmonary disease (COPD) (with and without comorbidities) in Intensive Care Unit admission

Figure no. 1 suggest that patient with Chronic Obstructive pulmonary disease (with & without comorbidities) in Intensive care unit is reduced from 25% to 16% after COVID – 19 outbreak, moreover data also suggests that 90.98 % patients were suffering from infection which was most likely originated through respiratory route and 93.98 % patients were empirically prescribed antimicrobial agents.

DISCUSSION:

A total of 257 cases were reviewed, out of which 50.19 % were male and 49.80 % were females. Similarly, a study carried out by Jyothsna C S et al. Showed 57.3 % was males and 42.7% were females. (4) Another study suggests similar finding. (5) The mean age of males were 57 years whereas the mean age of females were 54 years. It has been found an earlier study conducted by Senthilkumar S et al. found that mean age of patients was 66.84 years, (6) These trends in age group patterns are comparable to similar study done in India. (7)

The most common indication which warranted admission in Intensive care unit before COVID – 19 outbreak belongs to other group (33.87%) where patient admitted with various conditions, followed by patients with Chronic obstructive pulmonary disease with comorbidities (21.77 %) and patient's with Type 2 diabetes mellitus with comorbidities (8.06%) and after COVID – 19 outbreak, most common indication which was responsible for admission in Intensive care unit was Lab confirmed COVID – 19 positive patients (54.88 %) followed by Lab confirmed COVID – 19 positive patients with comorbidities (18.79 %) and Chronic obstructive pulmonary disease with

comorbidities (12.03 %) whereas study done by Williams A et al. found that 31.5 % patients admitted due to various indications, 30.5 % were due to sepsis and 15 % patients had surgical indications, (8) other study showed similar findings as well. (9) patient with Chronic Obstructive pulmonary disease (with & without comorbidities) in Intensive care unit is reduced from 25 % to 16 % after COVID – 19 outbreak, moreover data also suggests that 90.98 % patients were suffering from infection which was most likely originated through respiratory route and 93.98 % patients were empirically prescribed antimicrobial agents, However previous study done by Sharma PR et al. concluded that the AM consumption observed over 4 months period showed reducing trend, which may be due to the awareness created by the “Reserve AM Indent form” or due to the seasonal variation in the disease profile and criticality of the patients. (10)

Limitations of the study:

The major limitation of our study was ongoing pandemic of Covid 19 caused by severe acute respiratory corona virus (SARS-CoV2) which had great impact on consumption of healthcare facilities and conducting this research, also collection of data was done from the records so our data analysis is limited only to the information available in the records. This study was done with small sample size that may affect the validity of the conclusions.

CONCLUSION:

This study gave an overview of change in the pattern of indication in ICU admission due to COVID – 19 which will help in providing better patient care and utilization of healthcare facilities, this in fact would also reduce unnecessary consumption of antimicrobial drugs.

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