



COVID 19 DEATH ANALYSIS OF THIRD WAVE AT A TERTIARY CARE HOSPITAL

Community Medicine

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ABSTRACT

India has been severely affected by the ongoing COVID-19 pandemic. However, due to intensive surveillance and widespread Covid 19 vaccination campaign, morbidity and mortality due to Covid 19 during the third wave showed a dramatic downfall. The present study is an attempt to analyse the COVID 19 deaths and various sociodemographic and morbidity factors associated with Covid deaths at a Tertiary care hospital. A Hospital record based retrospective study was carried out using medical records data on direct COVID-19 and all-cause mortality occurring in a district during the third wave from 1st January 2022 to 31st March 2022. Results showed that out of 255 admissions, 171 patients were newly infected, 69 patients had breakthrough Infections, 11 had reinfection and 4 patients had both breakthrough and reinfection. Out of total 35 deaths, 24 were newly infected and 11 had breakthrough infections. Although the case fatality rate was just 0.6%, deaths were higher in elderly male patients belonging to urban areas and mostly unvaccinated patients. Additionally, comorbid conditions (such as Hypertension, diabetes, cardiac and renal disease) increased the risk of death with Covid 19.

KEYWORDS

COVID 19 deaths, Sociodemographic profile, Tertiary hospital

INTRODUCTION:

The novel Coronavirus Disease 2019 (COVID-19) is an international public health emergency caused by the respiratory droplet transmission of SARS- CoV- 2 virus.^{1,2} COVID-19 has had devastating consequences on the global population and is associated with a high incidence of acute respiratory distress syndrome, vascular injury, and death.³ It has resulted in more than 4.9 million direct deaths worldwide, and more than 61.5 lakh deaths by March 2022. India is among the most severely affected countries in the ongoing pandemic, with over 4.3 crore cases and over 5.21 lakh deaths reported by March, 2022.⁴ COVID-19 death counts do not take into account the indirect consequences of the COVID-19 pandemic on mortality levels. Indirect effects may include increases in mortality resulting from reductions in access to and use of healthcare services, economic hardship, housing insecurity, food insecurity and psychosocial consequences of stay-at-home orders. Elderly people, patients suffering from comorbid conditions such as Coronary heart disease, Hypertension, Diabetes mellitus, Obesity, Chronic obstructive airway disorders, Chronic diseases of the lung, liver, heart and kidney, etc and front-line workers are also more prone for deaths due to Covid-19 and its complications.^{5,6} The rising deaths have come despite heroic efforts by frontline health care professionals, advances in hospital-based care, and therapeutic agents newly authorized by the US Food and Drug Administration such as monoclonal antibody treatments, remdesivir, and dexamethasone.⁷

Although India has been badly affected by first and second wave of Covid, the third wave proved to be much milder in duration, severity, morbidity as well as mortality. The number of COVID-19 cases had begun declining statewide and the peak of Covid third wave is almost over as cases are reducing in cities like Mumbai, Thane, Raigad, Palghar that were worst hit.⁸ In the present study, we tried to analyse the COVID 19 deaths during the third wave and various sociodemographic and morbidity factors associated with Covid deaths at a Tertiary care hospital.

MATERIAL AND METHODS:

A Hospital record based retrospective study was carried out in a tertiary care hospital in a District of Maharashtra State. We made use of data on direct COVID-19 and all-cause mortality occurring in Akola district during the third wave from 1st January 2022 to 31st March 2022 and reported before 31 March 2022. Mortality data due to Covid 19 were collected from medical indoor case papers of patients from medical record section. Sociodemographic data (such as age, sex, residence, COVID vaccination status etc) as well as data on various morbidity factors associated with Covid deaths was noted down in detail. The study data was collected after obtaining permission from Institutional ethical committee. Data thus collected was entered in microsoft word excel sheet, compiled and statistically analysed by using proportion and percentages.

RESULTS:

Table 1: Proportion of COVID-19 infections and deaths during third wave at a Tertiary care hospital (1/01/2022 to 31/03/2022)

New Patients (Infected First Time)	Breakthrough Infections (Infection in Vaccinated Patients)	Reinfection (Previous History of Covid-19)	Breakthrough and Reinfection on Both	Total Admissions	Total Deaths	Total COVID positive patients (OPD & IPD)	Case fatality rate
171	69	11	4	255	35	6213	0.6%

Table 1 depicts the proportion of COVID-19 infections and deaths during third wave at a Tertiary care hospital for a period of 3 months (January to March 2022). Out of 255 admissions, 171 patients were newly infected, 69 patients had breakthrough Infections (who had received Covid 19 vaccination), 11 had reinfection (who gave previous History of Covid-19 infection) and 4 patients had both breakthrough and reinfection. Total deaths were 35 out of 255 admissions and 6213 Covid positive patients (including both OPD and IPD patients). Out of total 35 deaths, 24 were newly infected with Covid and 11 had breakthrough infections. Case fatality rate (the ratio between deaths and confirmed cases of Covid 19) was found out to be extremely low ie 0.6%.

Table II: COVID-19 mortality by sociodemographic and other health factors

Sociodemographic and other Characteristics of Covid deaths		(N=35)	
		Frequency	Percentage
Age (Years)	20 - 40	4	11.4
	40 - 60	10	28.6
	60-80	19	54.3
Gender	≥80	2	5.7
	Male	23	65.7
Residence	Female	12	34.3
	Urban	19	54.3
Covid Vaccination status	Rural	16	45.7
	Vaccinated	11	31.4
	Non vaccinated	13	37.2
Presence of comorbidities	Status not known	11	31.4
	Hypertension	22	62.8
	Diabetes mellitus	8	22.9
	CHD (Coronary heart disease)	6	17.1

	Chronic kidney disease (CKD)	5	14.3
	CVE (Cardiovascular vascular episode)	5	14.3
	COPD (Chronic obstructive pulmonary disease)	3	8.6
	Anaemia	2	5.7
	Multiple comorbidities	29	82.9

Sociodemographic and other characteristics of Covid death patients has been shown in Table II. It was noted that higher proportion of deaths was found in 60-80 years age group (54.3%) followed by 40-60 years (28.6%). Mortality in male patients (65.7%) was more than female patients (34.3%). Also patients belonging to urban areas (54.3%) had higher mortality than rural patients (45.7%). As far as Covid 19 vaccination status is concerned, it was observed that deaths were more in non-vaccinated patients (37.2%) as compared to vaccinated (31.4%) and in patients whose vaccination status is unknown (31.4%). Considering presence of comorbid conditions, patients with multiple comorbidities succumbed more due to covid 19 (82.9%). Hypertension was found to be the commonest comorbid cause of death (62.8%), followed by diabetes mellitus (22.9%), CHD (17.1%), CKD and CVE (17.1%), COPD (8.6%) and least had anaemia (5.7%).

DISCUSSION:

The present study analysed the Covid 19 deaths occurring during the third wave at a Tertiary care hospital. COVID-19 ranks as a leading cause of death; at certain times, it is the leading cause of death. No age group has been spared, although COVID-19 was not the leading cause of death for the younger age groups. Notably, mortality statistics fail to capture the full devastation of COVID-19-related morbidity, involving not only physical health but also the emotional, social, and spiritual dimensions of well-being. Second, risk of COVID-19 death is highest among the oldest and lowest among the youngest populations. Age makes a major difference in mortality risk. Our study showed the highest mortality in 60 to 80 year age group. Compared with those aged 18 through 29 years, people between the ages of 75 and 84 years and those 85 years or older have 200 times and 630 times greater average death rates, respectively.⁹ In Mumbai and Delhi, the third-wave surge lasted around four weeks. Kolkata saw the shortest surge of just 20 days while Chennai reported the longest one lasting 32 days. The third wave of the Covid-19 pandemic appears to have peaked in the four largest cities of the country, with the seven-day average of cases showing a clear decline in Mumbai, Delhi, Kolkata and Chennai. Maharashtra's 3rd Covid Wave seems to be declining as the new daily cases dropping down drastically. Covid deaths in the state in March have fallen by a staggering 90% against 737 casualties reported in February. The slide is 95% if compared with the third wave peak of January, when 1,524 deaths were seen.⁸ The full impact of the pandemic has been much greater than what is indicated by reported deaths due to COVID-19 alone.¹⁰ Strengthened death registration systems, intensive surveillance activities and extensive covid vaccination coverage around the world has resulted in significant decline in morbidity and mortality in third wave of covid pandemic.

CONCLUSIONS:

Covid death analysis during the third wave in present study showed maximum deaths in elderly patients with preponderance among urban male and unvaccinated patients. Moreover, multiple comorbidities significantly increased the proportion of Covid deaths. The case fatality rate stood at 0.6 per cent suggesting lower mortality risk in third wave in view of country's robust surveillance system and widespread covid vaccination campaign.

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