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## Clinical and demographic characteristics of deceased patients due to COVID-19 in Bihar

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Sir,

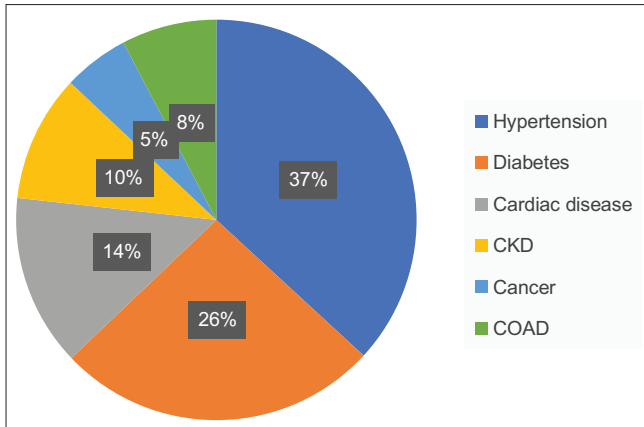
Corona virus disease 2019 (COVID-19) is the infectious disease caused by the most recently discovered

coronavirus named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) began in Wuhan, China, in December 2019.<sup>[1]</sup> SARS-CoV-2 (COVID-19) was declared

**Table 1: Characteristics of corona virus disease 2019 deceased patients**

Variable	Total cases (n=207,823)	Total death (n=1011)	Case fatality rate (0.48%)
Age (years)			
0-20	43,507	13 (1.28)	0.02
21-40	87,797	124 (12.26)	0.14
41-60	57,405	463 (45.79)	0.80
>60	19,114	411 (40.65)	2.15
Male	123,258	817 (80.81)	0.66
Female	84,565	194 (19.18)	0.22
Any one comorbidity		359 (35.5)	

Number in bracket shows proportion



**Figure 1:** Prevalence (%) of comorbidities in covid 19 deceased cases, CKD: Chronic Kidney disease, COAD: Chronic obstructive airway disease

a pandemic by the World Health Organization on March 11, 2020. As of October 30, 2020, the cases of COVID-19 infection continue to soar worldwide with no peak in sight making total case tally standing at 81,37,119 including 5,82,649 active cases, 72,32,839 cured/discharged/migrated and 1,21,641 deaths, according to the Ministry of Health and Family Welfare.<sup>[2]</sup> In Bihar till October 20, total cases were 207823 including 1011 death. Case fatality rates vary among country and even in country. Case fatality rate was found lowest in Bihar (0.48%) in comparison to other states or national figure of 1.49%. Several studies showed that old age, male sex, and comorbidities such as hypertension and cardiovascular disease are strong risk factors for COVID-19-related hospitalization and mortality.<sup>[3,4]</sup> This study is aimed to delineate the clinical characteristics and evaluate the prevalence of underlying comorbidities in COVID-19 deceased patients in Bihar.

We conducted a retrospective study with descriptive research and sought information from the Ministry of Health and Family Welfare, Government of India and State

health society of Bihar website, interaction with state health officer of Bihar.

We analyze all the patients expire due to COVID infection in Bihar till October 20, 2020. Total 1011 patients deceased in given period. We found maximum death in 41–60 years age group, while 13.55% of the deceased were <40 years and 40.65% were >60 years old. Age-wise deceased cases are shown in Table 1. Among the deceased, 80.81% were male, whereas 19.18% were female. Case fatality rate found as 0.48%, which is far less than the national figure of 1.49%. It was found highest in elderly patient (2.15%), followed by 0.8%, 0.14%, and 0.02% for the patient with the age group of 41–60, 20–40, and <20 years old, respectively. About 35.5% of the deceased patients had preexisting comorbidities, which was <50.5% of the national figure shown by other study.<sup>[5]</sup> Hypertension was found as the most common comorbidity (37%), followed by diabetes, cardiac disease, chronic kidney diseases, chronic obstructive airway disease (asthma and COPD), and cancer [Figure 1]. The strong point of this study is one of the largest cohorts of deceased due to COVID-19 infection. This study found the highest death in patient with age group of 41–60 years, although the case fatality rate was highest in elderly patient with age >60 years. The lower mortality in Bihar could be attributed to the lower elderly population, lesser comorbidity, different climate, poor hygiene, and regular bacille Calmette-Guérin vaccination, but all these factors need to prove from further study.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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Submitted: 01-Nov-2020 Accepted: 01-Nov-2020

Published: 06-Mar-2021

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**How to cite this article:** Rai DK. Clinical and demographic characteristics of deceased patients due to COVID-19 in Bihar. *Lung India* 2021;38:S125-7.

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