Age-standardized mortality rate and predictors of mortality among COVID-19 patients in Iran

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Abstract:

BACKGROUND: To have a thorough understanding of epidemic surveillance, it is essential to broaden our knowledge of death tolls worldwide. This study aimed to determine the age-standardized mortality rate (ASMR) and predictors of mortality among coronavirus disease 2019 (COVID-19) patients.

MATERIALS AND METHODS: In this cross-sectional design, all COVID-19 patients with a positive polymerase chain reaction test in the population covered by Arak University of Medical Sciences (AUMS) were entered to the study. Data collection was conducted by phone interview. The study variables comprised age, sex, coronary heart diseases, diabetes, and some symptoms at admission. The adjusted odds ratio (OR) and 95% confidence intervals (CIs) were obtained by logistic regression. The direct method was applied to calculate ASMR (per 100,000) of COVID-19. The analysis was applied by STATA software 12.0.

RESULTS: A total of 208 cases of COVID-19 (out of 3050 total infected cases) were dead and 2500 cases were recovered. The mean age of dead patients was 70 years. The COVID-19 fatality rate in the population equaled 6.8%; in those patients who were 70 years old or more, however, the case fatality rate was 16.4%. The ASMR of COVID-19 was 12.9 (CI 95%: 11.2, 14.8). The odds of COVID-19-related death in the age over 60 were 10.87 (CI 95%: 6.30, 18.75) times than lower 45 years old. Moreover, it was observed that COVID-19 significantly increased the odds of COVID-19-related death in diabetes patients (OR = 1.45, CI 95%: 1.02, 2.06, $P = 0.036$).

CONCLUSION: The ASMR of COVID-19 was relatively higher in males than females. In general, the COVID-19 fatality rate was relatively high. We found that older age and diabetes can have impact on the death of COVID-19, but the headache was found to have a negative association with the COVID-19-related death.

Keywords:

Age-standardized, COVID-19, epidemiology, Iran, mortality

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Introduction

The novel severe acute respiratory syndrome coronavirus 2 caused the coronavirus disease 2019 (COVID-19) and has resulted in a pandemic reported from nearly every country around the world.[1,2] On January 30, 2020, the World Health Organization (WHO) declared the outbreak of COVID-19 as a public health emergency of international concern.[3] The total number of identified COVID-19 infections has been 5,204,508 across the world and 133,521 cases in Iran at the time of writing this article (May 25, 2020).[4] Of all these patients, 337,687 cases have died worldwide and 7359 cases have died in Iran.[4] The community transmission of COVID-19 has occurred at the onset of the epidemic in Iran since February 20, 2020, including the study setting; the area covered by Arak University of Medical Sciences (AUMS). This region was also