

COMPARISON OF MORTALITY PATTERNS IN PATIENTS WITH RARE DISEASES DURING COVID-19 AND SARS PANDEMICS

CCY Chung, WHS Wong, BHY Chung

Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong

Background

The COVID-19 pandemic is an unprecedented global health challenge. Since the outbreak of COVID-19 in December 2019, over 32 million confirmed cases and 993 thousand deaths were recorded across 218 countries and territories. Like the 2003 SARS pandemic, COVID-19-related mortality was shown to be higher in older patients and in patients with pre-existing comorbidities. This study sought to examine whether the same pattern is observed in patients with rare diseases in Hong Kong.

Methods

All admission records during the COVID-19 pandemic (Jan 23 – Aug 23, 2020) were extracted from the local public healthcare database (Clinical Data Analysis and Reporting System). Patients with rare diseases were identified using one or more of the 1,084 10th version of the International Classification of Diseases and Related Health Problems (ICD-10) codes, of which the reference to the diseases was previously described elsewhere. Admissions related to COVID-19 were extracted using ICD-10 in the rare disease and general population. Mortality rate was estimated using episode death, and was assumed to be related to the same admission. Mortality rate in patients infected with COVID-19 was compared with those without infection, and with those admitted in the same period one year prior the pandemic (Jan 23 – Aug 23, 2019). Subgroup analysis by age-group (≤ 18 , >18 to <60 , ≥ 60) was performed to understand the mortality patterns. Further analysis was done to compare the COVID-19 pandemic and the 2003 SARS pandemic (Mar 11 – Jun 30, 2003).

Results

During the period of Jan 23 to Aug 23, 2020, a total of 13,894 and 407,219 patients from the rare disease and general population were admitted to one or more of the public hospitals in Hong Kong, respectively. 77 patients with rare diseases and 4,381 patients from the general population were admitted with COVID-19 infection. Overall COVID-19-related mortality rate in the rare disease population was 3.6 times higher than that in the general population (6.5% vs 1.8%), contrasting with the figures during the SARS pandemic (12.0% vs 16.1%). In both the rare disease and general populations, COVID-19-related mortality was almost exclusively seen in patients 60 years old or above. Surprisingly, while the age-related increase in mortality was also observed for the general population during the 2003 SARS pandemic, SARS-related mortality rate in rare disease patients 18 years old or below were significantly higher than that of the general population (12.5% vs 1.0%). This was different from the overall fatality rate seen in the general population.

Conclusion

While COVID-19 and SARS are both coronaviruses, this study demonstrated that the way they affect the subcategories of patients vastly differs. This warrants cautious and careful healthcare planning, especially during pandemics where resources are scarce. This also sheds light on the use of such quick and easy by-age-group mortality estimation for the development of prioritisation guidelines for resource allocation in the future.