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An Opportunity to Better Understand the Impact of Coronaviruses on Immunocompromised Patients

LETTER TO THE EDITOR—In my time as an epidemiology student, I have examined health outcomes and the overall impact of influenza on public health. This is why I read the recent article by Li et al [1] with great interest. The authors examined the outcomes of inpatients and outpatients with confirmed reverse transcription polymerase chain reaction (RT-PCR)-positive tests for influenza A or B or at least 1 of 4 common coronaviruses (229E, HKU1, NL63, and OC43) between June 2016 and February 2019, before the coronavirus disease 2019 (COVID-19) pandemic began to impact the United States. They found that patients with these common coronavirus infections had a higher risk of death and pneumonia than those with influenza, although there was no difference in intensive care unit admission rates. The authors examined the effects and distribution of covariates including comorbid conditions that have established associations with poor influenza and coronavirus outcomes, such as hypertension, type 2 diabetes, obesity, chronic ischemic heart disease, chronic kidney disease, and chronic lung disease. However, the authors did not examine another prominent condition that is related to severe influenza outcomes and could have an important association with coronavirus infections: immunocompromise.

A 2016 study found that the prevalence of immunocompromise in the United States is around 3%, making it fairly common [2]. Immunocompromise can result from a variety of causes including

autoimmune disorders, human immunodeficiency virus (HIV), and treatments for conditions like cancer or solid organ transplant. While patients who are immunocompromised have significantly worse influenza outcomes [3, 4], the effect of immunocompromise on coronavirus outcomes is less clear. The authors chose the comorbid conditions they would include in this study based on a recent article that did not find cancer to be significantly associated with COVID-19 outcomes [5]. However, the Centers for Disease Control and Prevention still consider immunocompromised patients to be at increased risk for severe negative outcomes due to COVID-19 infection [6]. There is mixed evidence that both supports and refutes this association [7, 8]. The effect of immunocompromise on common coronavirus outcomes is also not well understood, although it seems that patients who are immunocompromised experience more severe outcomes [9]. Data on who is experiencing immunocompromise or who has an immunocompromised condition are available in ICD-10 codes and in electronic health records, which were the data sources in this study, so even if the available evidence was mixed, it seems that not including immunocompromised patients in this study was a missed opportunity to contribute to our understanding of the impact of immunocompromise on common coronavirus outcomes.

Coronaviruses were circulating in the population before COVID-19, and they will likely continue to circulate long after we have overcome the pandemic. Understanding the enhanced risks that immunocompromised people have regarding common coronavirus infections can serve to better protect this population from severe outcomes in the future, and contribute to the way we treat and assess risk for immunocompromised patients during this pandemic.

Notes

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Response to Letter to the Editor from Christina Parisi

TO THE EDITOR—We appreciate Ms Parisi's recommendation [1] regarding investigating the role of immunosuppression in clinical responses to common coronaviruses and influenza. Although this is an intriguing topic, we did not include this as a variable in our analysis. One major challenge is accurately identifying

immunosuppressed patients solely from electronic health record data; the Centers for Disease Control and Prevention criteria for immunosuppression, for example, include more than *International Classification of Diseases* codes and involve chart abstraction by surveillance officers [2]. As Ms Parisi notes, an approximation of immunosuppression may be derived using electronic health record data, so this may be part of our future work.

Note

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