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The Risk of Diabetes on Clinical Outcomes in Patients with Coronavirus Disease 2019: A Retrospective Cohort Study (*Diabetes Metab J* 2020;44:405-13)

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We are living in the coronavirus disease 2019 (COVID-19) pandemic era. In December 2019, COVID-19 started in Wuhan, China, and it has now become a global health concern. COVID-19 was detected as pneumonia of an unknown cause in the early days, and it turned out to be caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1,2]. The SARS-CoV-2 is readily transmitted from person-to-person, even by those who are infected but without symptoms [2]. As of 15 June 2020, a total of 7,838,530 COVID-19 cases were confirmed all over the world, and 432,467 patients had died [3]. Many studies have noted that older people and those with underlying medical conditions are more vulnerable to COVID-19 [4,5]. Especially in patients with diabetes mellitus (DM), clinicians should pay attention to prevent COVID-19 because DM is one of the conditions associated with high morbidity and mortality risk [5,6].

In this article entitled, "The risk of diabetes on clinical outcomes in patients with coronavirus disease 2019: a retrospective cohort study," Chung et al. [7] explored the clinical characteristics of COVID-19 patients with DM and compared risk factor such as age, glycemic control, and medications to patients without DM. Among 110 participants, COVID-19 patients with DM had a higher rate of severe outcomes, including 28-day mortality, than those without DM. After adjustment for other risk factors, the risk of severe and critical outcomes (SCO) was 10 times higher in patients with DM than in those without DM. In patients with DM, old age was an independent risk factor for SCO in COVID-19, but glycemic control was not. Interestingly, the use of medication and poor glycemic control did not affect the SCO in COVID-19 patients. However, there are several issues to be discussed.

First, the result of this study was consistent with previous studies that patients with DM are vulnerable to COVID-19 and show poor prognosis. Furthermore, several studies have found that diabetes control has a role to play in COVID-19 outcomes [8,9]. In this study, however, poor glycemic control (glycosylated hemoglobin ≥8%) did not affect the prognosis of COVID-19 patients. The causal mechanism behind correlations between glucose control and worse COVID-19 outcomes is unclear because worse infection may predispose clinicians to more difficulty managing patient blood glucose.

Second, there has been some discussion regarding use of angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) being associated with worse outcomes in COVID-19 patients, particularly in patients with DM [10,11]. Although ACE inhibitors and ARBs seem to increase the number of ACE2 receptors on the cells utilized by SARS-CoV-2 for penetration, no evidence presently exists that shows this might be harmful in terms of acquiring or worsening COVID-19 [12,13]. Rather, in this study, the renin-angiotensin system inhibitors showed protective effects against acute cardiac injury. To date, in view of data showing potential benefits,

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the current recommendation is to continue with these therapies [6].

Finally, increased age is strongly associated with increased risks for COVID-19 severity [5]. In this study, SCO was more prevalent in elderly patients ≥70 years old and age was an independent risk factor for SCO in patients with DM. Special attention is needed to prevent and treat COVID-19 infection in elderly patients with DM.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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