

Differences in Clinical Outcomes between Patients with and without Hypoglycemia during Hospitalization: A Retrospective Study Using Real-World Evidence (*Diabetes Metab J* 2020;44:555-65)

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To prevent the development of complications associated with diabetes, appropriate glycemic control is important for diabetes patients. However, the results of several trials have aroused concerns about the effects of intensive glucose control on the risk of hypoglycemia [1-3], and it was shown in the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial that hypoglycemia may have contributed to the risks of cardiovascular complications and mortality in the groups in which glucose was intensively controlled [1]. Hypoglycemia increases the risk of death, especially in patients with cardiovascular disease [4,5]. In addition, hypoglycemia is associated with poor outcomes in hospitalized patients [6], including longer hospital stay and higher mortality [7,8]. Therefore, a reduction in hypoglycemia is considered to be one of the key goals in the treatment of diabetes.

In the article entitled, "Differences in clinical outcomes between patients with and without hypoglycemia during hospitalization: a retrospective study using real-world evidence," by Lee et al. [9], the authors report an evaluation of the risk factors for and the effects of hypoglycemia. The risk factors for hypoglycemia during hospitalization were found to be old age, low body mass index, female sex, and the use of premix insulin. In addition, the incidence of hypoglycemia was associated with a long hospital stay and poor glycemic control over a

3-month period. Patients with hypoglycemia tended to be more likely to develop cardiovascular disease; however, this trend was not significant. Although several previous studies have identified risk factors for hypoglycemia and shown the impact of hypoglycemia on the clinical outcomes of patients with diabetes, this report is obviously valuable because it presents findings that are based on real-world data.

However, in my opinion, there are some issues that were not addressed in this study. First, although the finding was not statistically significant, the study showed a higher rate of complications after 2 years in patients who experienced hypoglycemia than in those who did not. However, the baseline characteristics, such as age, sex, and number of patients with type 1 diabetes mellitus, were not well matched in each group, which may have confounded the evaluation of the effects of hypoglycemia itself on the incidence of complications. Adjustment for these confounding factors may modify the results somewhat. Second, it is interesting to note that the length of the hospital stay differed between the groups, despite the fact that there was no difference in baseline glycosylated hemoglobin (HbA1c) level. This suggests that hypoglycemia itself may have increased the length of hospital stay. However, it is difficult to determine whether hypoglycemia lengthened hospital stay or a long period of hospitalization made the diagnosis of hypoglycemia

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more likely. Third, because hypoglycemia is a major barrier to the achievement of good blood glucose control, it is not surprising that the patients with hypoglycemia had higher HbA1c levels at the end of the 3-month period. Comparisons of the HbA1c level and the proportion of patients achieving their glucose target in each group after 2 years would be informative. In addition, differences in glucose concentrations during the follow-up period may also contribute to the development of complications.

CONFLICTS OF INTEREST

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

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