Letter

Diabetes Metab J 2019;43:545-546
https://doi.org/10.4093/dmj.2019.0130
pISSN 2233-6079 · eISSN 2233-6087

dmj
DIABETES & METABOLISM JOURNAL

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Efficacy and Safety of Voglibose Plus Metformin in Patients with Type 2 Diabetes Mellitus: A Randomized Controlled Trial (*Diabetes Metab J* 2019;43;276-86)

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The proportion of people with type 2 diabetes mellitus (T2DM) is increasing in most countries, and the estimated population of diabetes in Korean adults (≥30 years of age) is 4.8 million, which represented 13.7% of Korean adults (≥30 years of age) in 2013 to 2014 [1]. Because the complications of T2DM are related to glycemic level, glycemic control to achieve normoglycemia or near-normoglycemia reduces the risk of cardiovascular and/or microvascular complications [2]. The treatment goals should be individualized considering age, duration of diabetes, life expectancy, presence of advanced diabetic complications, comorbidities, repeated episodes of hypoglycemia, cognitive dysfunction, and patient preference. Medical nutrition therapy and exercise is an essential component of treatment for all patients with T2DM and should be initiated promptly and simultaneously with antidiabetic medications after diagnosis. Metformin is the first-line drug that is used for the treatment of T2DM worldwide. If the initial glycosylated hemoglobin (HbA1c) level of a patient is ≥7.5% or the HbA1c target is not achieved within 3 months initiating monotherapy, dual combination therapy can be considered. The early initiation of combination therapy is preferred over maximizing the dosage of a single agent after considering glucose-lowering efficacy and side-effects [3].

Alpha-glucosidase inhibitor (AGI) acts as a competitive inhibitor of enzymes needed to digest carbohydrates and reduces postprandial glucose level by lowering carbohydrate absorption, but it also causes gastrointestinal (GI) side-effects such as flatulence and diarrhea. Therefore, adding AGI to metformin could be useful for glycemic control, especially in East Asian countries that consume relatively high-carbohydrate diets.

In this issue, Oh et al. [4] report the study entitled "Efficacy and safety of voglibose plus metformin in patients with type 2 diabetes mellitus: a randomized controlled trial," which showed the effectiveness and safety of voglibose-metformin fixed-dose combination (vogmet) in drug-naïve, newly diagnosed T2DM patients. In this study, vogmet treatment showed higher HbA1c reduction, lower glycemic variability, lower gastrointestinal (GI) adverse events (AEs), and higher weight loss than metformin monotherapy. Patients received metformin (500 mg) or vogmet (0.2/250 or 0.2/500 mg) two or three times a day. Although the final dosage of metformin was slightly higher in metformin group than vogmet group (1,322.4±166.1 mg vs. 1,208.8±263.1 mg, $P<0.001$), it is interesting that the vogmet group showed numerically less GI AE and significantly higher weight loss than metformin group. In terms of body weight, AGI is known to have a neutral effect, and metformin has a neutral or reducing effect [3]. Both metformin and AGI have does-dependent GI side-effects [5], and these side-effects are one of the largest barriers in choosing metformin or voglibose in clinical practice. The diet pattern and glucose-lowering effects and side-effects according to drug dose in vogmet group could give more information about voglibose and metformin

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treatment.

In this study, M-value by 7-points self-monitored blood glucose (SMBG) was used to investigate glycemic variability. However, SMBG may not be sufficient to evaluate glucose fluctuation like inter-day difference or intra-day difference [6,7]. Continuous glucose monitoring could be a better option for evaluation of glucose fluctuation.

Lastly, it might be better if they evaluate the effect of vogmet on waist circumference, blood pressure, lipid profiles, the homeostasis model assessment of β-cell, and insulin resistance.

Korean Diabetes Association recommends that the selection of a second agent as a metformin add-on therapy should be based on the patient's clinical characteristics and the efficacy, side effects, mechanism of action, risk of hypoglycemia, effect on body weight, patient preference, and combined comorbidity [8]. In this aspect, AGI could be a good choice as a second-line therapy in some patients with T2DM.

CONFLICTS OF INTEREST

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

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