Diabetes mellitus (DM) is a strong risk factor for cardiovascular (CV) diseases, including diabetic macroangiopathy and microangiopathy, both of which lead to severe reductions in lifespan, activities of daily living, and quality of life. Definitely, the number of diabetic patients is increasing worldwide. Thus, the management of diabetes is critical and most countries have their own guidelines for diabetes management. Among the oral antidiabetic agents, such as biguanide, sulfonylurea, gliptide, thiazolidinedione, a-glucosidase inhibitors (aGI), dipeptidyl peptidase-4 inhibitors (DPP4i), and sodium-glucose transporter 2 inhibitors (SGLT2i), etc., biguanide, aGl, DPP4i, and SGLT2i, which are unlikely to evoke hypoglycemia, are the most favorable choices because hypoglycemia could rather increase the number of CV events. Recently, DPP4i were shown to be protective against CV injury beyond the glucose-lowering effect, which is explain the discrepancy of the results).

Concerning coronary flow reserve (CFR) evaluated by cardiac magnetic resonance imaging (MRI), 12-week treatment with alogliptin was shown to improve CFR compared with glimepiride, a sulfonylurea agent, in T2DM and known or suspected CAD patients (HbA1c: alogliptin 7.2±0.6%, glimepiride 6.9±0.4%).7 Nevertheless, the present study showed no CFR improvement with sitagliptin compared with voglibose.7 Interestingly, again the key difference between the effective and non-effective studies was higher baseline HbA1c. Regarding the chronic effect of DPP4i on LV diastolic function as well, inconsistent data have been reported. The beneficial effect of DPP4i was demonstrated in a 24-week treatment with sitagliptin that improved LV diastolic function compared with NPH insulin in T2DM patients (HbA1c: sitagliptin 8.0±0.6%, NPH insulin 8.1±0.7%).10 Fujiwara et al also demonstrated that treatment with DPP4i improved LV diastolic function in patients with acute myocardial infarction (AMI), but not in those without DPP4i during a follow-up of 7.4±2.5 months (HbA1c: DPP4i 8.21±1.49%, non-DPP4i 8.10±1.63%).11 Meanwhile, the present study revealed a non-beneficial effect of DPP4i on LV diastolic function compared with voglibose.8 Concordantly, Oe et al revealed a non-beneficial effect of 24-week treatment with sitagliptin.
Limited Extent of Pleiotropic Effects by DPP4i

Data suggest that DPP4i should be used with an expectation of lowering blood glucose and avoiding hypoglycemia, but not used with an expectation of pleiotropic effects until further studies definitely reveal DPP4i-mediated pleiotropic effects.

Conflict of Interest

There are no conflicts of interest to report for any of the authors.

References


