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Retrospective Review of Efficacy And Safety of Dipeptidyl-Peptidase 4 Inhibitors For The Management of Type 2 Diabetes Mellitus At a Local Acute Hospital

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Introduction

Type 2 diabetes mellitus (T2DM) is a chronic, progressive disease affecting around 10% population in Hong Kong. Optimal glycemic control is important in preventing diabetic complications such as nephropathy, retinopathy, neuropathy, cardiovascular and cerebrovascular diseases. Dipeptidyl-peptidase 4 (DPP-4) inhibitor is one of the newest classes recommended by international guidelines in management of T2DM. In view of the increasing number of patients receiving DPP-4 inhibitors in Hong Kong, local data on efficacy and safety of DPP-4 inhibitor is required.

Objectives

To assess and investigate the efficacy and safety of DPP-4 inhibitors on glycemic control in patients with T2DM after 8 months of treatment, and to evaluate appropriateness of DPP-4 inhibitors dosage in accordance to patients' renal function.

Methodology

This was a non-interventional, retrospective study carried out in Princess Margaret Hospital (PMH). 234 Chinese patients with T2DM, aged 18 years or above, attended the specialist outpatient clinic (SOPC) of PMH from 1 Oct 2013 to 31 Mar 2014, newly dispensed with either sitagliptin, saxagliptin, vildagliptin or linagliptin, and had glycated haemoglobin (HbA1c) and/or fasting blood glucose (FBG) measured within 6 months before and during DPP-4 inhibitor treatment were included. Changes in mean HbA1c and FBG before and after 8 months of treatment were analyzed by paired t test. Adverse drug events including self-reported hypoglycemic episodes were documented. Renal function test information and dosing details of DPP-4 inhibitor were collected and compared against the renal dosage adjustment by international drug reference.

Result

Among 234 DPP-4 inhibitor patients included in this study, 27 received linagliptin, 7 received saxagliptin, 123 received sitagliptin and 77 received vildagliptin respectively. DPP-4 inhibitors reduced HbA1c from 9.41 ± 1.76% to 8.20 ± 1.51% (mean change of HbA1c -1.21%, 95% confidence interval (CI) -1.42% to -1.00%) after 8 months of therapy. FBG was reduced from 10.16 ± 3.66mmol/L to 8.50 ± 3.12mmol/L (mean change of FBG -1.66mmol/L, 95% CI -2.13 to -1.19mmol/L) after 8 months. Hypoglycaemia (n = 41, 17.5%) was the most common adverse drug event reported by patients. 37 (15.8%) reported hypoglycaemia were mild to moderate in nature and 4(1.7%) patients experienced severe hypoglycemia which required immediate medical attention. 131 (56.0%) patients were started with DPP-4 inhibitors at appropriate dose in regard to their renal function, while 92 (39.3%) patients received DPP-4 inhibitors at a dose lowered than the recommended level. This study demonstrated that DPP-4 inhibitors effectively lowered HbA1c and FBG after 8 months of treatment in Chinese patients with uncontrolled T2DM. Although there were reports of hypoglycemia after initiation of DPP-4 inhibitor therapy, they were mostly mild in nature and most patients tolerated DPP-4 inhibitors well after start of therapy.