



A STUDY ON THE PRESCRIBING PATTERNS OF DIPEPTIDYL PEPTIDASE 4 INHIBITORS IN A MULTI DISCIPLINARY HOSPITAL COMPLEX BIRDEM, BANGLADESH

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ABSTRACT

The aim of the study was to evaluate the current prescribing pattern of dipeptidyl peptidase 4 (DPP-4) inhibitors in a multi disciplinary hospital complex-BIRDEM, Dhaka, Bangladesh. The study was a retrospective descriptive analysis of consecutive patients prescribed with DPP-4 inhibitors and attending the diabetic clinic. Patient data was collected in relation to drugs prescribed and diabetic complications to evaluate the prescribing pattern of DPP-4 inhibitors as a new kind of antidiabetic drug. During the study, prescription of 150 patients of diabetes was reviewed. It was identified that prescriptions with (DPP-4) inhibitors was 51.3% whereas prescriptions with other hypoglycemic drugs was 48.6%. Sitagliptin (60%) was the most prescribed drug. The most commonly prescribed combinations were Metformin and DPP4 inhibitor (44%) as 2nd line agent, Metformin + Sulphonylureas + DPP4 inhibitor (24%) as 3rd line agents. Our evaluation revealed the most commonly prescribed DPP-4 inhibitor to be Sitagliptin. Through our review it was found that though DPP-4 inhibitors are recently approved drugs and launched in Bangladesh, physicians are more prone to prescribe this molecule rather than other traditional hypoglycemic drugs.

Keywords: Diabetes mellitus, Dipeptidyl peptidase 4 inhibitors, BIRDEM, Sitagliptin, prescribing patterns.

1. INTRODUCTION

21st century's most emerging problem is Diabetes (Meneilly and Tessier, 2001) Diabetes mellitus (DM) is a group of metabolic disease characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both (Alwin et al. 2008). Various agents are available which are used as monotherapy or in combinations for the treatment of diabetes mellitus. Several of these agents are also associated with adverse effects that include weight gain, hypoglycemia and gastrointestinal distress. There is a need therefore, for alternative therapies that can overcome the limitations associated with conventional anti hyperglycemic medications. DPP-4 inhibitors are relatively new oral hypoglycemic drugs that have a role in effectively reducing blood glucose levels. DPP-4 inhibitors increase Glucagon like peptide-1 (GLP-1) and gastric inhibitory polypeptide (GIP) levels, which inhibit glucagon release that in turn increases insulin secretion and thereby decrease blood glucose levels (Kothandam et al, 2012). According to U.S. Food and Drug Administration, 2006 the first agent of this class was Sitagliptin which has been approved by the FDA. According to The American Diabetes Association of Clinical Endocrinologists (AAACE) and National Institute for Health and Clinical Excellence (NICE) guidelines, adding a DPP-4 inhibitor can be used as a second line treatment

to Metformin if there is a considerable risk for hypoglycemia or if a sulfonylurea is contraindicated or not tolerated (Amanda et al, 2009). DPP-4 inhibitors possess weight neutral effect without causing Hypoglycemia. They are more expensive when compared to other agents. The main objective of this study was to review the prescribing pattern of DPP-4 inhibitors by the physicians at present time in the largest hospital for diabetes in Bangladesh.

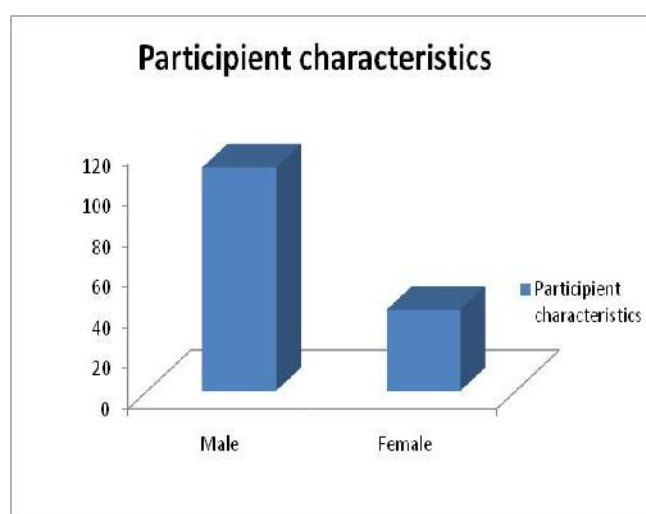
1. METHODS

A Single-center, retrospective observational study was conducted from 01 May to 01 July, 2016. All Adult Outpatients in the diabetic Clinic with a new initiation of DPP-4 inhibitors were included in the study. All in-patients, pediatric patients, pregnant women, and patients who were already on DPP-4 inhibitors were excluded from the study.

2. RESULTS

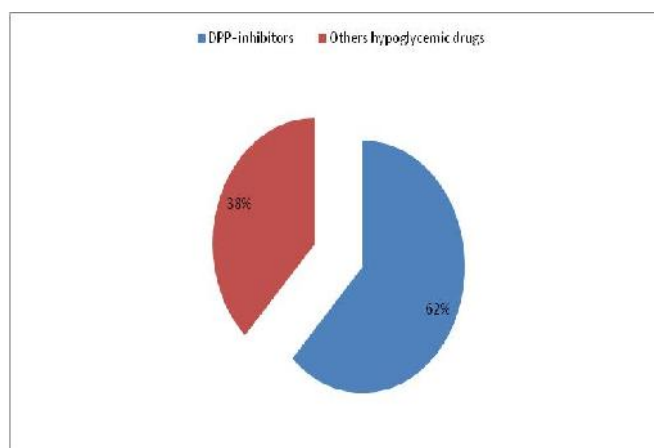
In our study of 150 patients, 110 (73.33%) were males and 40 (26.67%) were females.

Figure-1: Patient characteristics



From our study we could observe that DPP-4 inhibitor was in great demand comparing with other conventional hypoglycemic drugs, the most commonly prescribed DPP-4 inhibitor is Sitagliptin (60%) followed by Linagliptin (25%) and Vildagliptin (15%) which is represented at chart 1. Only 3% patient was found to be on DPP-4 inhibitors monotherapy.

Figure-2: Comparison of percentage (%) between prescribed DPP-4I and other conventional Hypoglycemic Drugs (total prescription=150)



Different combinations of DPP-4I with other oral hypoglycemics are represented in Table 2.

Table-1: Comparison of DPP4 Inhibitors as 1st Line, 2nd Line, 3rd Line agents

Serial. No	DPP-4 Inhibitor as	No of Prescription (%) (n=150)
1	1 st Line DPP-4I*	5 (3.33)
2	2 nd Line Metformin+DPP-4I SU+DPP-4I Insulin+DPP-4I	109 (72.7) 44 (29.3) 45 (30)
3	3 rd Line Metformin+Insulin+DPP-4I Metformin+SU+DPP-4I SU+Insulin+DPP-4I	37 (24.6) 10 (6.6) 24 (16)
4	4 th Line Metformin+SU+Insulin+DPP-4I	3 (2)

***DPP-4I Dipeptidyl Peptidase 4 Inhibitor**

1. DISCUSSION

DPP-4 inhibitors can be used in renal/hepatic impaired patient with appropriate dosage adjustments. Commonly used other anti-diabetic drugs are Metformin, Sulphonylureas, Insulin, Pioglitazone and Alpha Glucosidase Inhibitors. . From our study we could observe that the most commonly prescribed gliptin was Sitagliptin. This can be attributed to the fact that it is the first approved DPP-4 inhibitor in the market and also to the Asian study (China India Korea study), which suggests that sitagliptin was more effective in the Indian population with greater HbA_{1c} reductions. Linagliptin is a comparatively recently approved drug and its use in future is expected to increase in due course of time, as it's hepatic clearance is an added advantage over the other DPP4 inhibitors (John et al, 2006). As for coronary heart disease risk factors, DPP-4 may contribute to a reduction in blood pressure. Treatment of diabetic patients with drugs from the incretin family is one of the basic and central treatment tools available to the clinician today. This treatment is as efficient as the other known oral antidiabetic drugs, and it is safer than sulphonylurea when comparing the incidence of hypoglycemic events and therefore can be considered as monotherapy as well as combination therapy with metformin. When considering which drug to choose between the GLP-1 analogs and the GPP-4 inhibitors, the clinicians should consider parameters such as the patient's age, the time from initial diabetes diagnosis, body weight, compliance, and financial means (Mistry et al, 2008). Our aim was to find out the modern trend of prescription of Bangladesh for Diabetes patient over conventional hypoglycemic drugs. Other convention hypoglycemic drugs include Sensitizers (Biguanides, Thiazolidinediones), Secretagogues (Sulphonylureas) and Alpha-glucosidase inhibitors. Through this study it was clear that DPP-4 inhibitors are becoming popular day by day with Bangladeshi physicians though it is a new molecule in the market.

1. LIMITATIONS

The study was only carried out on a multidisciplinary hospital in Dhaka, Bangladesh. By analyzing more prescriptions of diabetic patients throughout the country may reveal the more accurate scenery of the trend of DPP-4 inhibitors.

2. CONCLUSION

Though Bangladesh is a 3rd world country, it has fame for the production of efficient drugs and providing satisfactory medical services. The physicians are also qualified and acknowledged with modern and advanced drug interventions. From our study it was observed that clinicians are prone to prescribe newly launched drugs.

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