Study on the prescription pattern of Oral Hypoglycemic Agents in Type 2 Diabetes mellitus in the out patient department of a tertiary care hospital in chennai.

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ABSTRACT *Background: Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels(1).*

Aim:This study was to evaluate the pattern of prescription of oral hypoglycemic agents(OHA) among the type 2 diabetic population in the out patient department.

Method: The study was a prospective observational study. 180 Type 2 diabetic patients on oral hypoglycemic agents were observed for 12 weeks. Their socio demographic and the relevant clinical datas were evaluated and statistically analysed.

Result: The number of OHAs per prescription varied from one to three and the average number of anti-diabetic drugs per prescription was 1.8. In this,69(39%) patients were on insulin and 111(61%) patients were on OHAs. OHA's were the commonest of anti-diabetic drugs prescribed in this study. Sulfonylureas (36%) were the most commonly prescribed class followed by biguanides (32.5%)

Conclusion: This study shows that the pattern of antidiabetic prescription among type 2 diabetic patients was rational and largely consistent with NICE (National Institute for Health and Clinical Excellence) guidelines .The study shows the importance of utilization of two drug combination therapies and monotherapy of OHA.

Introduction

Diabetes is a chronic condition associated with abnormally high levels of glucose in the blood. Insulin produced by the pancreas lowers blood glucose. Absence or insufficient production of insulin causes diabetes. Symptoms of diabetes include increased urine output, thirst and hunger as well as fatigue(2). Diabetes is diagnosed by blood sugar (glucose) testing. The major complications of diabetes are both acute and chronic. Acute complications include dangerously elevated blood sugar, abnormally low blood sugar due to diabetes medications, chronic is related to diseases of the blood vessels (both small and large), which can damage the eye, kidneys, nerves, and heart(3).

As per World Health Organization, around 31.7 million individuals in India were affected by diabetes during the year 2000 which may further rise to 79.4 million by the year 2030(4). Management of DM requires both pharmacological and non pharmacological interventions. Hypoglycemia is the common adverse drug reaction (ADR) of antidiabetic drugs and it is associated with substantial morbidity and mortality(5). In this regard, study on the prescription pattern of OHA s were conducted to know the commonly used drugs among the out patient .

Materials and Methods:

The study was a prospective observational study conducted on diabetic patients in the out patient department of a tertiary care hospital. The sample size was 180 based on the inclusion and exclusion criteria. The study was done with duration of 12 weeks in which 180 patients of diabetes of 18 years and above were receiving anti-diabetic therapy for more than 1 year. After the informed Consent from the patients, sociodemographic data were obtained along with details of anti-diabetic drug therapy from the prescription form.

The following were analysed from the prescription form:
Average number of OHA s per prescription, percentage of different class of OHA prescribed, commonest class and type of OHA prescribed, percentage of anti-diabetic drugs

prescribed from essential drug list (WHO and Indian National Essential Drug List)(6, 7).

The study was then statistically analysed.

Results:

Out of 180 anti diabetic patients who fit into the inclusion criteria, 120 OHA products were prescribed. Male patients were 58% (n = 104), female were 42% (n = 76) and the mean age of the sample was 53.12 (±10.5) years.

Pattern of the prescription:

During the study, the number of OHAs per prescription varied from one to three and the average number of anti-diabetic drugs per prescription was 1.8. In this 69(39%) patients were on insulin and 111(61%) patients were on OHAs. [Figure 1]. Thus OHA's were the commonest of anti-diabetic drugs prescribed in this study. Sulfonylureas (36%) were the most commonly prescribed class followed by biguanides (32.5%) [Figure 2]. Their fixed dose combination (FDC) accounted for 31.5%. Glimeperide(sulfonylureas) was the most common individual OHA to be prescribed 35.93%, followed by metformin(biguanides) 30.25%, followed by FDC of glimepiride plus metformin 24.25%[figure 3]. Other classes of OHA prescribed were alpha glucosidase inhibitor 2.9%, thiazolidinediones 4.83%, and dipeptidyl peptidase 4 inhibitors (DPP 4 inhibitors) 3.2%, respectively. Insulin preparations accounted

for 38.6% of the total anti-diabetic drugs and the most common preparation was regular short acting insulin preparation.

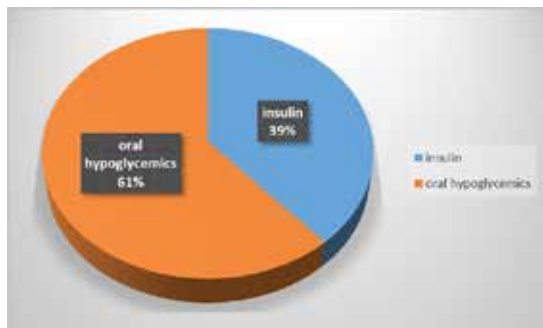The drugs prescribed were found to be branded drugs(100%).
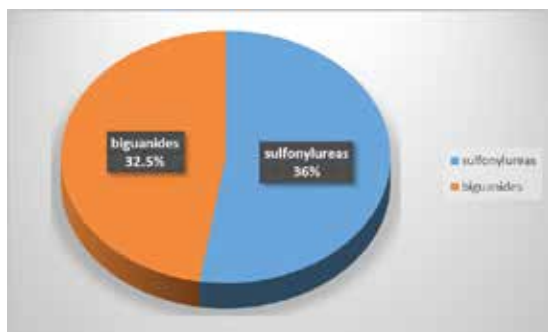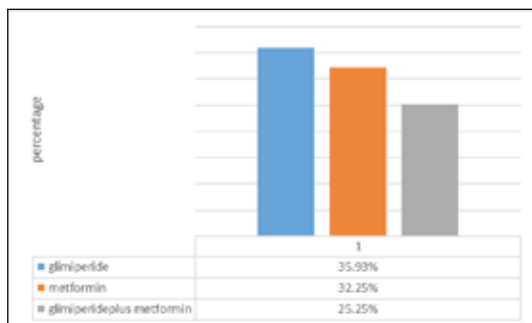
Figure 1:

Figure 2:

Figure 3:

	percentage
■ glimiperide	35.93%
■ metformin	32.25%
■ glimiperideplus mecformin	25.25%

Discussion:

This study was done to assess the prescription pattern of commonly used OHA in diabetic patients in a tertiary care hospital in chennai. In this study, out of 180 patients who were included in the study were type 2 diabetic patients. Most of these patients were on oral hypoglycemic drugs except 39% percent who were on insulin. This shows the majority of patients were controlled by OHAs.

The average number of OHA drug per prescription was 1.8.This differs from the other drug utilisation study done at various parts of india(8).

In this study, the sulfonylureas were the most common OHAs used when compared to metformin and other oral anti diabetic drugs. Among the sulfonylureas, glimeperide was the most commonly prescribed drug. This indirectly

shows the efficacy of the sulfonylureas in controlling the hyperglycemia.But some studies shows that metformin were the most common used drugs followed by sulfonylureas as evident by these articles(9,10)

Also monotherapy is very common compared to the combination of metformin and glimiperide which is only 25.5%. This outcome supports a similar study as evident from an article by willey et al(11).

Limitations of the study:

This study was undertaken only for a short duration of 12 weeks. The study needs further study period to evaluate the efficacy of the drugs. So the effective glycemic control of the drugs can be evaluated.

Conclusion:

The study was done to know the dominance of OHAs over insulin in type 2 diabetic patients. The treatment should aim at better glycemic control with monotherapy or combination of OHAs than switching over to insulin. This study shows 61% percentage of prescription is OHAs. So we should aim at increasing OHA use over insulin in type 2 diabetes mellitus to avoid unnecessary complications due to insulin.

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