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Prescription pattern analysis of antidiabetic drugs: A prospective study in OPD patients of medicine department at Bidar institute of medical sciences, Bidar

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Abstract

Diabetes results from the failure of the pancreas to produce a sufficient amount of insulin. Hormone that regulates the body's use of glucose is insulin the pancreas produces a sufficient amount of insulin, but if the insulin is blocked from the body's cells and cannot be used. This causes patients to have abnormally high amounts of sugar in their urine and blood. Diagnosing a patient with diabetes is more complicated than measuring the glucose level of urine only one time. The diagnosis involves several hours of glucose-tolerance tests (GTT). A prospective observational study was carried out on 100 patients of both type 1 and 2 diabetes mellitus attending the OPD in BRIMS teaching hospital. Institutional ethics clearance was taken and the study conducted from Jan 2019 to march 2019. Data of 100 diabetic patients was collected and studied for the prescription pattern. In our study 30% were females and 70% were males. Most of the patients belong to the age group above 60 years (50%) followed by 40-60 years (40%). 95% patients had Type 2 Diabetes mellitus whereas type DM seen in 5% patients. The patients were either on monotherapy consisting of Insulin, metformin or sulphonyl urea or they were on combination therapy Out of 100 patients who were being studied, 76 % patients were on mono therapy, 16% patients prescribed dual therapy and only 8% were prescribed triple therapy.

Keywords: Prescription pattern analysis, antidiabetic drugs, hyperglycemia

Introduction

Diabetes mellitus is a metabolic disorder with common denominator of hyperglycemia, arising from a variety of pathogenic mechanisms. It has emerged as an epidemic both in the developing and developed countries and shows no signs of regression ^[1]. Diabetes mellitus (DM) is a major health growing problem and an important cause of prolong ill health and early death. It was the sixteen leading cause of global mortality in 1990 ^[2]. DM is a chronic progressive metabolic disorder characterized by hyperglycemia mainly due to absolute (Type 1 DM) or relative (Type 2 DM) deficiency of insulin hormone. DM virtually affects every system of the body mainly due to metabolic disturbances caused by hyperglycemia ^[3]. Hall mark of DM is polyurea, polydipsia and polyphagia. Hyperglycemia is a common end point of both type 1 and 2 DM and an important parameter for evaluation of antidiabetic drugs. ^[4].

Diabetes results from the failure of the pancreas to produce a sufficient amount of insulin. Hormone that regulates the body's use of glucose is insulin the pancreas produces a sufficient amount of insulin, but if the insulin is blocked from the body's cells and cannot be used. This causes patients to have abnormally high amounts of sugar in their urine and blood. Diagnosing a patient with diabetes is more complicated than measuring the glucose level of urine only one time. The diagnosis involves several hours of glucose-tolerance tests (GTT). These tests measure the rate in which sugar is removed from the bloodstream and after the test are complete, high glucose level indicates insufficient insulin and the patient is diagnosed with diabetes ^[4].

Currently, India leads the world with the largest number of diabetic subjects and this is expected to further rise in the coming years. Given the high prevalence of diabetes in Indians with over 50 million diabetics already, and the numbers expected to increase to 87 million by the year 2030, this could place considerable burden on the health budgets of this country ^[5]. The study of prescribing pattern is a component of medical audit that does monitoring and evaluation of the prescribing practice of the prescribers as well as recommends necessary modifications to achieve rational and cost effective medical care ^[6]. Therefore, drug utilization studies, which evaluate and analyze drug therapy are more meaningful, and observe the prescribing attitude of physicians with the aim to provide drugs rationally.

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Keeping all these facts in consideration, the present study was designed to analyze the prescribing patterns of antidiabetic drugs at Bidar institute of medical sciences (BRIMS) Bidar, Karnataka, India.

Materials and Methods

A prospective observational study was carried out on 100 patients of both type 1 and 2 diabetes mellitus attending the OPD in BRIMS teaching hospital. Institutional ethics clearance was taken and the study conducted from Jan 2019 to march 2019. Patients with different age groups adults, old and of both the genders considered in study. A structured questionnaire was constructed which included demographic data, detailed medical history, medications for DM, questions regarding lifestyle, eating habits, and physical activities of the patient. Subsequent visits done on monthly intervals. The data obtained is subjected to suitable statistical analysis and evaluation.

Results

Data of 100 diabetic patients was collected and studied for the prescription pattern. In our study 30% were females and 70% were males. Most of the patients belong to the age group above 60 years (50%) followed by 40-60 years (40%). 95% patients had Type 2 Diabetes mellitus where as type DM seen in 5% patients. The patients were either on monotherapy consisting of Insulin, metformin or sulphonyl urea or they were on combination therapy Out of 100 patients who were being studied, 76 % patients were on mono therapy, 16% patients prescribed dual therapy and only 8% were prescribed triple therapy. 6% patients were taking insulin among whom blood glucose levels within range. We found that the most commonly prescribed drug in the patients was metformin 50%, and other drugs were sulfonylureas 30%, pioglitazone 10%, insulin 8%, voglibose 6%.

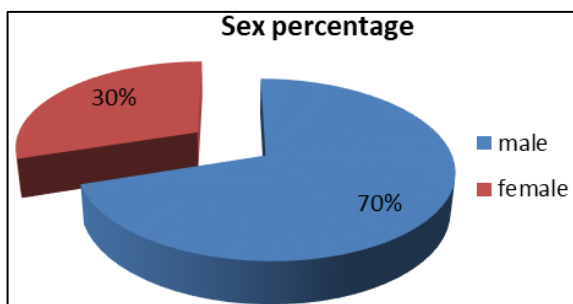


Fig 1: sex distribution

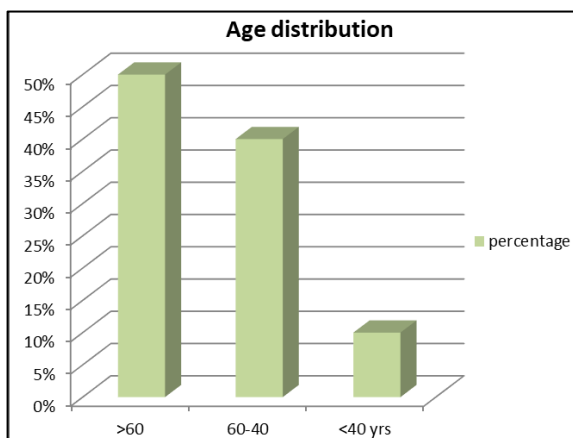


Fig 2: Age distribution

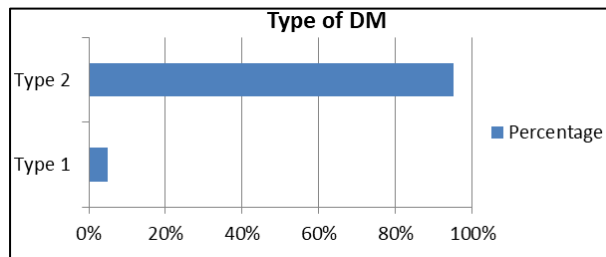


Fig 3: Type of DM

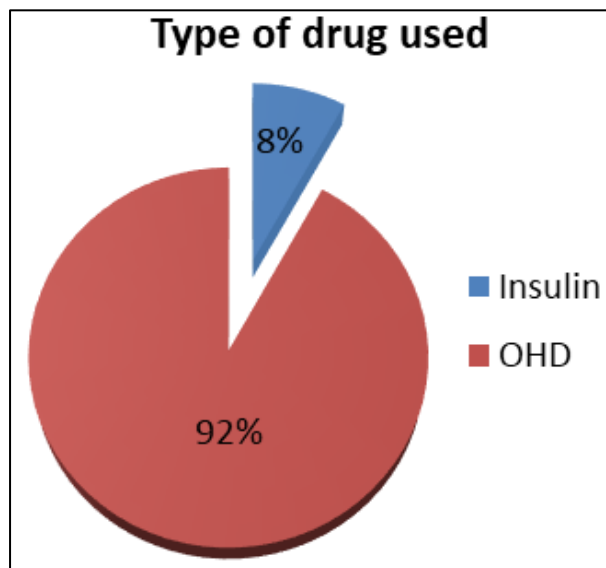


Fig 4: Type of Antidiabetic drug used

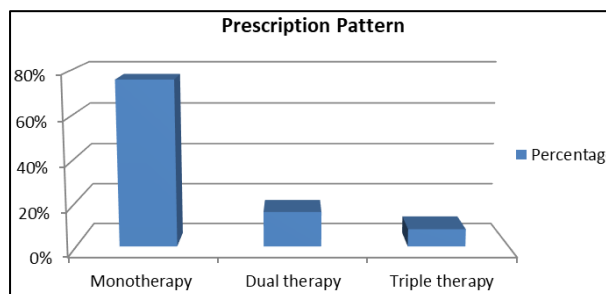


Fig 5: prescription pattern of drugs

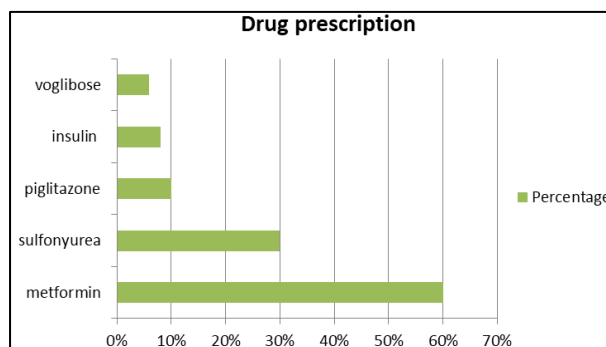


Fig 6: prescription percentage of drugs

Discussion

In the present study the type of DM and the age pattern was matching with some previous studies on diabetes mellitus. Monotherapy was most commonly prescribed. We found out that most people didn't monitor their glucose levels regularly and most weren't doing or advised any form of exercise and diet control. These are important for glycemic control in Type

2 diabetic patients. Hence the patients should be counseled about the importance of diet control and exercise. Also they should be advised to monitor their blood glucose levels regularly so that appropriate drug regimen should be prescribed according to their needs. We also determined that combination therapy isn't being prescribed much although it is found in literature that most experts prefer combination therapy over monotherapy [7-9]. Therefore, the doctors should seek alternatives when they see that their target for glucose level within normal range is not being met.

Conclusion

Diabetes should be managed properly to enhance the quality of life of the patient. In the study carried out most of the prescriptions were rational, but further improvement is needed.

The choice of drug should be based on economic status, associated conditions. Rational prescribing should focus on dose and duration as well as interaction with other medications. This can be done by prescribing a proper drug regimen consisting of hypoglycemic agents as well as diet control and exercise. Efforts from both patients and the physician should be made to meet the target glucose levels and have a better and healthy life.

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