

Original Article

Frequently Prescribed Anti-Diabetic Medication at Initiation of Treatment in Upazilla Hospital

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Abstract:

Objective: To assess the frequently prescribed anti-diabetic medication at initiation of treatment.

Methods: A descriptive, cross sectional study was conducted from January 2019 to June 2019 among 300 patients attending at medicine outpatient department of upzilla health complex, Sitakundo, Chittagong after obtaining requisite consent from the patients. Data were collected through the assessment of patients in the Outpatient Department. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the frequently prescribed anti-diabetic medication at initiation of treatment. The study was approved by the institutional ethical committee.

Results: In a pool of 300 type 2 diabetes, most patients (57.3%) belonged to the middle age group 41-60 years. Female patients (74.3%) were more than the male patients at the outpatient department. Type 2 DM is more common in urban area (65.7%). Most of the patients were initially treated with metformin (38.3%) followed by sulfonylureas (20.0%) and insulin (10.7%).

Conclusion: Most of the patients were initially treated with metformin followed by sulfonylureas and insulin.

Keywords: Metformin, Diabetes mellitus.

Introduction

Diabetes mellitus is one of the oldest diseases known to man, which was the first reported in Egyptian literature about 3000 years ago. The name diabetes was first given by the Greek physician Aretaeus. Avicenna is the famous Arabian physician who first described the complications and progression of the disease. In 1889, Joseph von Mering and Oskar Minkowski discovered the role of pancreas in diabetes. Sir Edward Albert Sharpey-Schafer in 1910 found that diabetes resulted from lack of insulin. Banting, Best and Collip purified the hormone insulin from pancreas of cows at the University of Toronto. This led to the availability of an effective treatment for diabetes in 1922. Trials to prepare an orally administered anti-diabetic agent ended successfully after first marketing of tolbutamide and carbutamide in 1955.¹ The prevalence of diabetes mellitus is growing rapidly worldwide and is reaching epidemic proportions.² Type 2 diabetes characterized by high level of blood glucose due to the impaired action of insulin and insufficient insulin production by pancreas.³ Because of the progressive nature of the

disease, an evolving treatment strategy is necessary to maintain both fasting and postprandial glycemic control. The goal of type 2 diabetes treatment is to lower the blood glucose with diabetic meal plan, physical activity, weight loss (if needed) and medication (if needed).⁴ Medications for diabetes mellitus need to be taken for the entire life and factors like efficacy, side effects, drug interactions and cost of therapy need to be taken into consideration.⁵

Methods

A descriptive, cross sectional study was conducted from January 2019 to June 2019 among 300 patients attending at medicine outpatient department of upzilla health complex, Sitakundo, Chittagong after obtaining requisite consent from the patients. Purposive sampling was adopted for collecting data. The assessment of patients were held directly in the Outpatient Department. The relevant information was entered into the predesigned proforma to assess the frequently prescribed anti-diabetic medication at initiation of treatment. The collected data were entered into the computer and analyzed by using SPSS (version 20.1).

Results

According to table-I, the age structures of the patients have been categorized in years into three groups. Overall 77 (25.7%) patients were in ≤ 40 years old while 172 (57.3%) patients were 41-60 years old, 51 (17.0%) patients belong to > 60 years age group. Most patients belonged to the middle age group 41-60 years

Table-I: Age distribution of the study population (n=300)

Age (years)	Number	Percentage
≤ 40 yrs	77	25.7
41-60 yrs	172	57.3
> 60 yrs	51	17.0
Total	300	100.0
Mean $\pm$ SD	50.59 $\pm$ 12.57	Range 30-90 yrs

Figure-I shows that, total numbers of patients as both male and female were 300. It comprised of 77 (25.7%) male and 223 (74.3%) female in outpatient. Female patients were more than the male patients at the outpatient department.

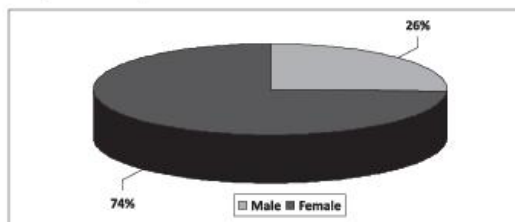


Figure-I: Pie chart showing sex distribution of the study population

According to table-II, out of 300 patients, 197 patients came from urban area and 103 patients from rural area. Type 2 DM is more common in urban area.

Table-II: Residential status of the study population (n=300)

Residence	Number	Percentage
Urban	197	65.7
Rural	103	34.3
Total	300	100.0

According to table-III, out of 300 patients, 115 patients (38.3%) were initially treated with biguanides, 60 patients (20.0%) were initially treated with sulfonylureas, 32 patients (10.7%) were initially treated with insulin, 1 patient (0.3%) was initially treated with

incretin mimetics, and 92 patients (30.7%) could not mention the drug name which was initially used.

Most of the patients were initially treated with metformin.

Table-III: Most frequently prescribed anti-diabetic medication at initiation of treatment

Treatment starts with	Number	Percentage
Sulfonylureas	60	20.0
Biguanides	115	38.3
Insulin	32	10.7
Could not mention	92	30.7
Incretin mimetics	01	0.3
Total	300	100.0

Discussion

This study showed that diabetes mellitus is more prevalent in female patients than in male patients. This may be assigned to the fact that women are more obese than men. The other reasons might be due to lack of physical activity, life style changes, dietary habit and stress. Almost similar results were obtained in the other studies.¹ However other studies reported higher prevalence of DM in men.^{6,7}

This study also found a higher prevalence of diabetes was among the middle aged patients, with a high percentage (57.37%) in the age group of 41-60 years where the mean age was 50.59 $\pm$ 12.5 years. This result correlates with the study of sajith et al.² A study from the Nepal reported that higher mean age 58.1 $\pm$ 11.6 years in type 2 diabetic patients. So this present study does not correlate with the Nepal study. In general elderly patients are at a greater risk of developing type 2 diabetes mellitus. In the present study, type 2 DM is more common in urban people (65.7%). Our study findings are also similar to the study conducted in Bangladesh by Akter et al.⁸ Similar findings have been reported in china (11% versus 8%). Diabetes may be more common among urban residents due to sedentary life style or different dietary habits. In our study we observed that a large number of patients (38.3%) initially treated with metformin. This prescribing pattern is according to guidelines of American Diabetes Association. They recommended that metformin should be started along with lifestyle changes at the time of diagnosis. In our study, 10.7% patients initially treated with insulin. In case of newly

diagnosed type 2 diabetes mellitus patients short term aggressive insulin therapy preserve beta cell function, reduce insulin resistance and maintain optimal glycemic level. Our result is not consistent with the result of Sharma, Nazareth and Petersen study.⁹ In their study they observed that 1.7% patients with newly diagnosed type 2 diabetes mellitus were prescribed with insulin as first line therapy.

Conclusion

Most of the patients were initially treated with metformin followed by sulfonylureas and insulin. This prescribing pattern is according to guidelines of American Diabetes Association. They recommended that metformin should be started along with lifestyle changes at the time of diagnosis. Although, newer & expensive agents like DPP4 inhibitors & GLP-1 agonists are available in the market. Older & cheaper agents like metformin & sulfonylureas are still the mainstay of treatment in the context of our country.

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Conflict of interests: None

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