

Drug utilization of hypoglycemic agents in diabetic centers of Telangana region

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ABSTRACT: Diabetes mellitus is chronic condition caused by deficiency in insulin production or ineffectiveness of insulin produced. This results in increased glucose concentration in blood, which then damages many of the body systems, blood vessels and nerves. It is predicted that by 2030 diabetes mellitus may afflict upto 79.4 million individuals in India, while china(42.3 million) and the US (30.3million), significant increases will be seen in all affected areas by the disease. This study is another look towards various prescribing patterns of drugs conducted in the regions of Telangana. In our study the most commonly used antidiabetic drug is metformin (64.78%), followed by glimepride, glicazide, gilbenclamide (33.13%), acarbose and voglibose (19.01%), sitagliptin, vildagliptin, tenegliptin (18.12%), pioglitazone (7.13%), dapaglifozine (2.08%). The most common complication in diabetic subjects are found to be suffering with stroke (44.42%).

KEYWORDS: Drug utilization, Diabetes mellitus, Complications, Comorbidities, Anti diabetic, HbA1c, Biguanides, Sulfonyl ureas.

INTRODUCTION

Diabetes mellitus is a chronic condition caused by deficiency in insulin production or ineffectiveness of insulin produced. This results in increased glucose concentration in blood, which then damages many of the body systems, blood vessels and nerves [1]. In India diabetes is gaining a rapid status with more than 62 million diabetic individuals [2, 3].

The statistical report in the year 2000 precisely reported that India (31.7million) topped the world with the highest number of people with diabetes mellitus followed by china (20.8million) with the US (17.7million) in second and third place respectively [4]. It is predicted that by 2030 diabetes mellitus may afflict upto 79.4 million individuals in India, while china(42.3 million) and the us (30.3million), significant increases will be seen in all affected areas by the disease [4,5]. Diabetes is a pandemic disease that has struck each and every corner of the world. According to the Indian council of medical research Indian diabetes study (ICMR), a National diabetes study, India currently has 62.4 million people with diabetes [6]. This is set to increase to over 100million by 2030 [7]. The disease appears to be more prevalent in the south of the country as compared to the northern and eastern parts [8]. The study of prescribing pattern is a component of medical audit that monitors and evaluates the prescribing practice of the prescribers as well as recommends necessary modifications to achieve rational and cost effective medical care and it helps to evaluate and suggest modifications in prescribing practices of medical practioners so as to make medical care rational [9]. The diabetes mellitus patients are generally treated with many pharmacological agents. In addition to blood glucose control, treatment of concurrent illnesses and cardiovascular protective agents generally leads to polypharmacy and the chance to drug related problems in prescription [10].

MATERIALS AND METHODS

A prospective observational study was conducted for a period of 6 months at Sri Bhadrakali diabetic clinic (Warangal) and Chalmeda Ananda rao Hospital (Karimnagar). A total of 673 prescriptions of diabetic patients were monitored for about 6 months. All the necessary data for this study was collected from the patient profile forms, medication charts and interviewing patients.

Patients included in this study were, patients diagnosed with diabetes mellitus of age above 25 years who were treated with hypoglycemic agents, patients with diabetes mellitus along with comorbid conditions were selected and patient with atleast one anti diabetic agent prescribed has been selected.

Patients excluded in this study were, patients without diabetes mellitus, patients who are below 25 years of age. Also, patients with gestational diabetes, malignancy and other psychiatric disorders are excluded.

The present study includes demographics such as age, gender, education, social history, family history. Clinical characters such as HbA1c, duration of diabetes (in years), complications and comorbidities. In this study the data was analyzed with Excel 2010 as a statistical tool.

RESULTS AND DISCUSSIONS

Table 1 shows, among 673 diabetic patients, it was found that 422 were males (62.70) and 251 were females (37.29). Most of the diabetic patients were males. The results are in agreement with those previously reported in different countries [11-14].

Table 2 shows that, in our study, majority of the diabetic patients (37.74%) are qualified with the tertiary education. About 27.78% have secondary and 17.23% were illiterates. Only 17.08% were found to be primary. The prevalence of diabetes is common in educated people than illiterates. This study was contrary to study done by Olufunsho Awodele [15].

Table 3, 4 shows that, out of 673 diabetic patients 304 (45.17%) were alcoholics, 65 (9.65%) were smokers, 85 (12.63%) were both alcoholic and smokers. 219 (32.54) diabetic patients were either alcoholic or smoker. This study was contrary to a previous study done by Manjusha [16] showed that 77.1% were not having such habits.

Table 5 shows that, majority of diabetics (66.56%) are not having a family history of diabetes but 33.43% has a family history of diabetes, which shows that subject with a family history of diabetes are less prone to diabetes. This study is supported by Mohammed Shamshir Ala [17] in his study only 36 out of 200 (18%) diabetics showed family history of diabetes.

Table 6 shows that out of 422 males, 191 (28.38%) are in good HbA1c control, 87 (12.92%) are acceptable and 144 (21.39%) are in poor control.

Table 7 shows that out of 251 females, 103 (15.30%) are in good HbA1c control, 38 (5.64%) are acceptable and 110 (16.34%) are in poor control.

Fig 6 shows that the most common complication in diabetic subjects are found to be suffering with stroke (44.42%).

Fig 7 shows that HTN, dyslipidemia, stroke are the most common comorbid condition associated with T2DM.

In our study the most common used antidiabetic drug is metformin (64.78%), followed by glimepride, glicazide, glibenclamide (33.13%), acarbose and voglibose (19.01%), sitagliptin, vildagliptin, tenagliptin (18.12%), pioglitazone (7.13%), dapagliflozine (2.08%). Biguanides are the most common class OHA to be prescribed, followed by sulphonyl ureas, alpha glucosidase inhibitors, DPP4 inhibitors, thiazolidinediones and sodium glucose co-transport-2 inhibitors.

Table 1. Percentage distribution according to age.

Gender	No. of patients	Percentage
Males	422	62.70%
Females	251	37.29%
Mean & standard deviation		46 + 15.5

Table 2. Percentage distribution according to education.

Education	No. of patients	Percentage
Illiterates	116	17.23%
Primary	115	17.08%
Secondary	187	27.78%
Tertiary	254	37.74%

Table 3. Percentage distribution according to social history in males.

Social History	No. of patients	Percentage
Alcohol	260	38.632%
Smoking	35	5.200%
Alcohol+Smoking	69	10.252%
Not significant	58	8.618%

Table 4. Percentage distribution according to social history in females.

Social History	No. of patients	Percentage
Alcohol	44	6.537%
Smoking	30	4.457%
Alcohol+Smoking	16	2.377%
None	161	23.922%

Table 5. Percentage distribution according to family history.

Family History	No. of patients	Percentage
Present	225	33.43 %
Absent	448	66.56 %

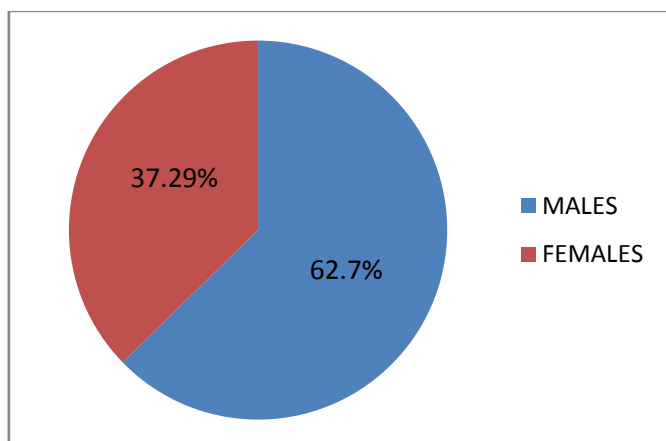
Table 6. Percentage distribution according to HbA1c in males.

HbA1c	No. of patients	Percentage
Good	191	28.38%
Acceptable	87	12.92%
Poor	144	21.39%

Table 7. Percentage distribution according to HbA1c in females.

HbA1c	No. of patients	Percentage
Good	103	15.304%
Acceptable	38	5.646%
Poor	110	16.344%

Fig 1. Percentage distributions according to gender.



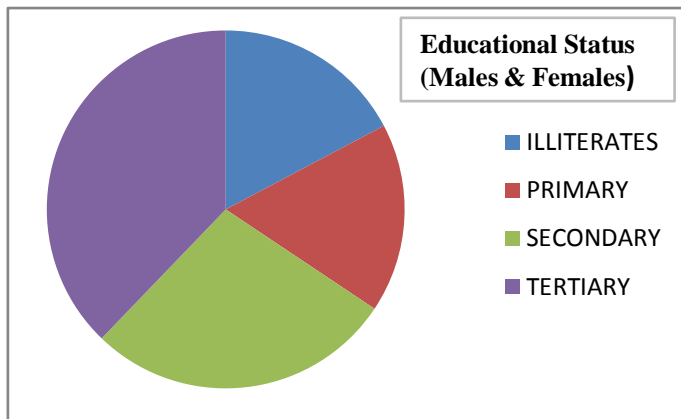


Fig 2. Percentage distributions according to education.

Fig 3. Percentage distributions according to social history in males.

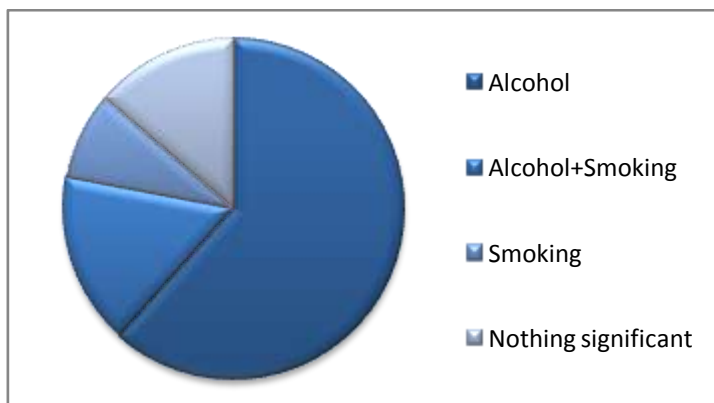


Fig 4. Percentage distributions according to social history in females.

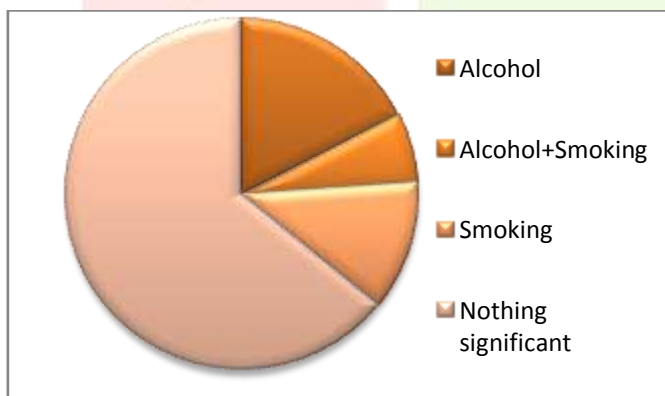


Fig 5. Percentage distributions according to HbA1c in males.

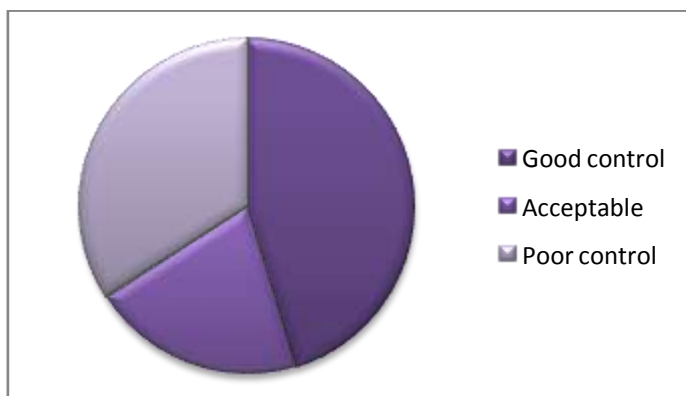


Fig 6. Percentage distributions according to HbA1c in females.

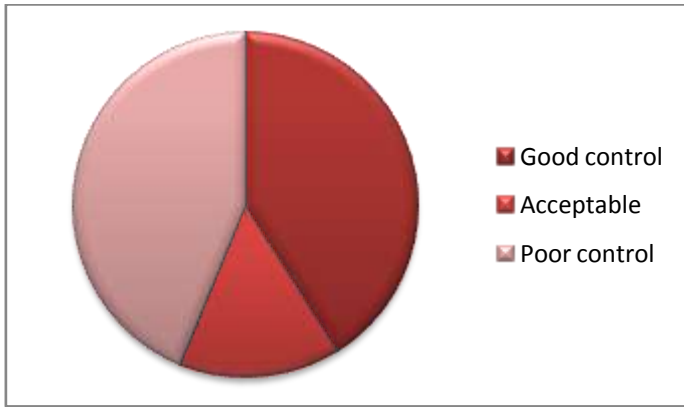


Fig 7. Percentage distributions according to categories of drug use.

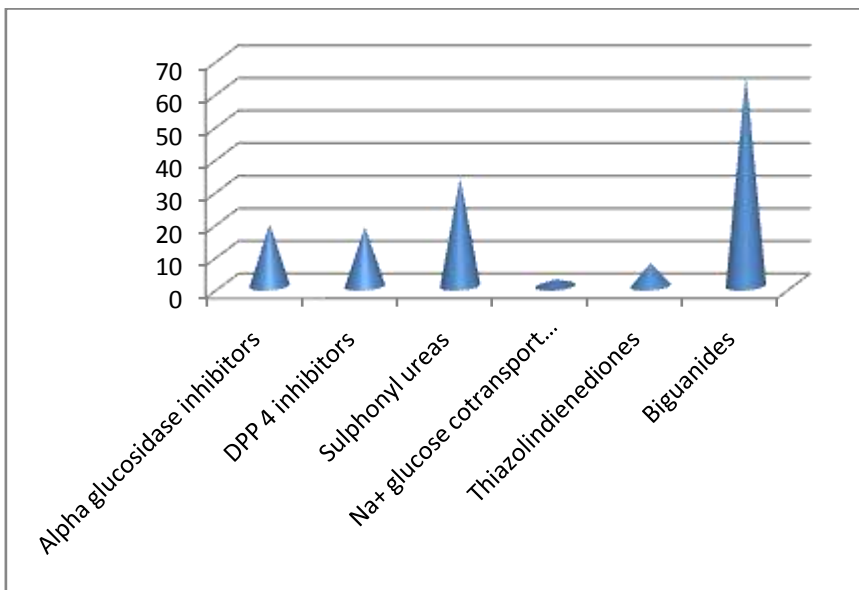


Fig 8. Percentage distributions according to complications.

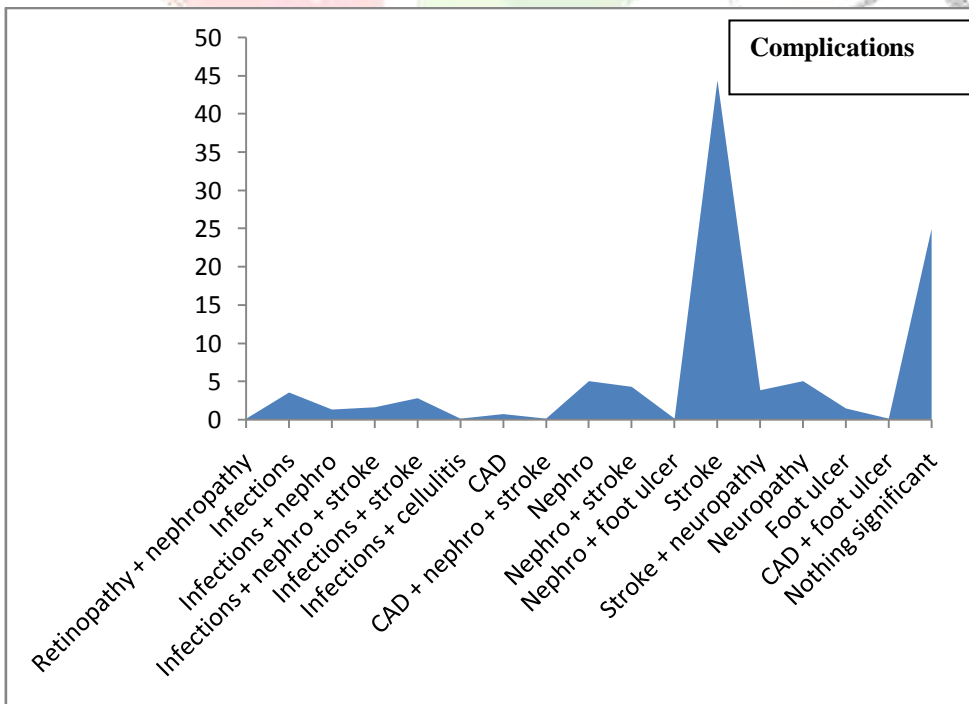
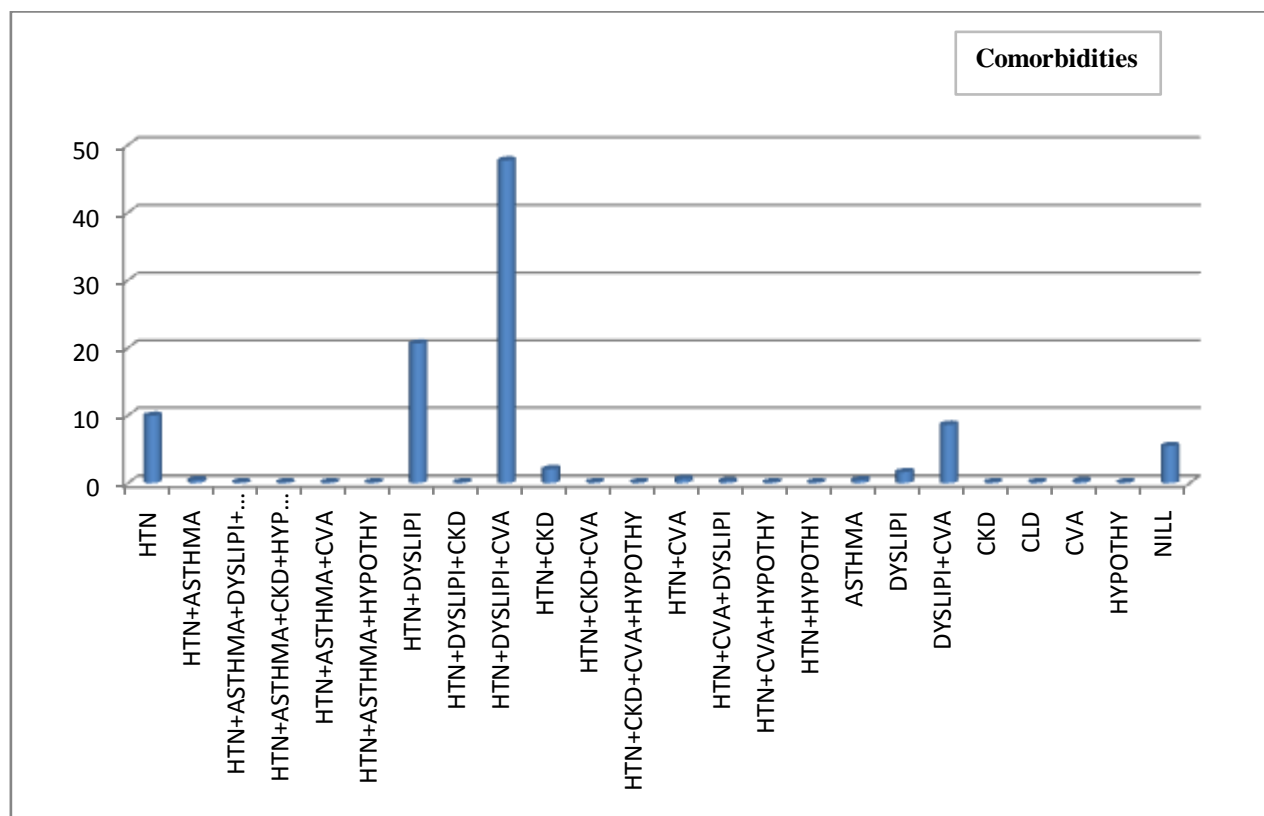


Fig 9. Percentage distributions according to co morbidities.



CONCLUSION

The present study was to analyze the prescription patterns of the diabetic patients. Oral hypoglycemic agents were the main form of antidiabetic therapy in type 2 Diabetes mellitus patients. A varied range of combinations of anti diabetic are being required to maintain glycemic control. It is evident that diabetes is becoming boon for the country, so strict programmes should be initiated by both private as well as government sectors to avoid the burden. Clinicians, clinical pharmacists and other health care professionals must also monitor various combinations of hypoglycemic agents in prescribing patterns which ultimately maintains a good glycemic control, avoid complications and provide better clinical outcomes.

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