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Research Article

PHARMACOECONOMIC AND DRUG UTILIZATION STUDY OF ANTIDIABETIC THERAPY IN A TERTIARY CARE TEACHING HOSPITAL OF NORTHERN INDIA

AFROZ ABIDI*, DILSHAD ALI RIZVI, ALI AHMAD

Department of Pharmacology, Era's Lucknow Medical College, Lucknow, Uttar Pradesh, India. Email: afrozabidi@gmail.com

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ABSTRACT

Objective: This study was planned to analyze the prescription patterns and compare the cost of antidiabetic drugs in our tertiary care teaching hospital.

Methods: It was a prospective observational study conducted over a period of 6-month. Data were collected on a predesigned case record form from patients of diabetes attending medicine outpatient department, and the core prescribing indicators were evaluated. Their pharmacy bill was also collected and analyzed and percentage variation in the cost of antidiabetic drugs was calculated.

Results: A total of 262 prescriptions were analyzed showing the main age group between 50 and 60 years (39.69%). Out of 262 patients, 141 (53.82%) were males and 121 (46.18%) were females. 176 (67.17%) prescriptions had 2-5 drugs showing clear evidence of polypharmacy. The total number of drugs prescribed in 262 prescriptions were 1209, and thus, an average number of drugs prescribed were 4.61/prescription. The most common antidiabetic drug prescribed was metformin 500 mg in 189 (33.99%) patients, and the most common antidiabetic combination was glimepiride 2 mg + metformin 500 mg in 62 (34.63%) patients. Insulin was used in 37 (14.12%) prescriptions. Among other drugs, maximally used were atorvastatin 86 (7.11%) followed by aspirin 54 (4.46%) patients. The percentage cost difference of antidiabetic drugs varies from 40.62 to 633.33. The cost of monthly therapy for a maximum number of patients was in the cost range INR 100-500 in 148 (56.48%) patients.

Conclusion: The most frequently prescribed antidiabetic drug was metformin and the most frequently used combination used was glimepiride and metformin. Polypharmacy was also evident in our study, and the cost of monthly antidiabetic therapy was also moderately high.

Keywords: Pharmacoeconomic, Drug utilization, Antidiabetic drugs.

INTRODUCTION

Diabetes is a group of metabolic disorders characterized by chronic hyperglycemia along with disturbance of carbohydrate, protein, and fat metabolism due to defects in insulin secretion and/or insulin response [1]. It is a chronic disorder requiring life-long treatment to maintain the blood glucose levels which if not controlled may lead to numerous complications, which degrades the quality of life.

Approximately 381 million people worldwide had diabetes according to International Diabetes Federation 2013 report. Its incidence is growing rapidly, and by 2030, this number is expected to be double [2]. As stated by the Indian Heart Association, India is the diabetes capital of the world with an estimated 109 million individuals with diabetes by 2035 [3]. This high incidence of diabetes in a developing country like India may be due to urbanization and lifestyle changes like consumption of high-calorie food along with sedentary habits in predisposed individuals who are genetically susceptible.

Diabetes has major social and economic implications; hence, the cost of antidiabetic therapy is one of the main factors for patient compliance.

Diabetes mainly occurs in older age group, though incidence is now increasing in younger population. The geriatric population has special problems related to health, economic and social support [4]. Elderly diabetic patients usually suffer from comorbidities which necessitate the use of numerous medications. Moreover, elderly people show physiological variations which may lead to pharmacokinetic and pharmacodynamic variations/interactions among drugs used. Thus, improper medication use, irrational prescribing, occurrence of adverse drug reactions (ADRs) and non-compliance due to economic and health issues are common in elderly. Hence, we specifically need to address these issues and formulate strategies for geriatric prescribing.

Rational prescribing indicates that "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period, and at the lowest cost to them and their community" [5]. It is demonstrated by drug utilization studies. Drug utilization as defined by WHO is, prescribing, dispensing, ingesting, marketing, distribution and use of drugs in society, with special emphasis on the resulting medical, social and economic consequences. These studies are important as they help to scrutinize newer drugs in the market, analyze the wide variation in the patterns of drug prescribing and consumption, address the concerns about delayed ADRs and examine the increasing costs of drug/therapy [6].

The WHO has devised a set of core drug use indicators, which includes prescribing, patient care, and health facility indicators which will assist in the implementation of rational prescribing by health care workers [7].

Pharmacoeconomics is a new scientific discipline of health economics which compares two pharmaceutical drugs/products or therapy. It estimates the cost and outcome in terms of efficacy and quality of life [8]. These studies provide a guide to ensure that limited resources are used in a scientific and competent way to optimize healthcare facilities in developing countries [9]. The cost-effective therapy in diabetes mellitus will not only lead to adherence to rational prescribing but will also increase the patient compliance with fewer drop outs due to cost factor. This will lead to less diabetic complications and better quality of life thereby improving therapeutic effectiveness.

Hence given above observations, we planned this drug utilization study in diabetic patients attending our hospital with a main focus on cost analyses. Our main aim was to study the prescription patterns, compare the cost of antidiabetic drugs and to suggest the best cost effective

therapy in diabetic patients to ensure maximum adherence to therapy and decrease morbidity and mortality due to complications.

METHODS

The study was performed prospectively over a period of 6-month from June to November 2015. All the data were collected on a predesigned case record form from diabetic patients attending the medicine outpatient department (OPD). Diabetic patients were enrolled in the study after taking written informed consent from each patient. Permission was obtained from Institutional Ethics Committee.

Patients having diabetes alone, receiving any type of antidiabetic medication or with other comorbid conditions were also included in the study. Patients having any prior or recent complications due to diabetes or were admitted due to it were also included. Only female diabetic patients who were pregnant or those patients having inadequate data of previous treatment/complications or those patients not willing to participate in the study were excluded from the study.

The case record form was designed in such a manner to include all demographic characteristics of the patient, disease profile, drug profile, and prescription profiles. A copy of the patient's pharmacy bill was also collected from the indoor pharmacy and was analyzed. The drug formulation, its individual retail price, manufacturer details, the monthly cost borne by the patient was noted down. Further, the cost of particular drug which was manufactured by different companies, in the same strength and dosage form were evaluated, and the difference in maximum and minimum price were calculated. For the drugs whose generic names were not written on prescription and price was not mentioned in the bill, we used Current Index of Medical Specialties and Indian Drug Review Oct-Dec 2015 issues to find the generic names, the combinations and their cost.

Percentage variation in cost was calculated using this formula as follows:

$$\text{Percentage cost variation} = \frac{\text{Cost of highest priced product} - \text{Cost of lowest priced product}}{\text{Cost of lowest priced product}} \times 100$$

Statistical analysis

The data were analyzed and mentioned in simple frequencies and percentages.

RESULTS

A total of 278 prescriptions were collected over a period of 6-month, out of which 262 were fit to be analyzed.

Highest numbers of patients were in the age group 50-60 years (39.69%). 16 patients (6.1%) patients were below 40 years age group. Out of 262 prescriptions studied, more number were males, i.e., 141 (53.82%) and less were females, i.e., 121 (46.18%). Maximum patients had diabetes for 6-10 years, i.e., 80 patients (30.53%). Fasting blood glucose levels were 126-200 mg/dl in a maximum number of patients, i.e., in 165 (62.97%) patients. 225 patients had comorbidity and the most common comorbid condition was metabolic disorder in 87 (33.21%) patients out of 225. 115 (43.89%) patients had diabetic complications and the most common complication was diabetic neuropathy in 36 (31.30%) patients. 147 (56.11%) patients had no complications. Positive family history of diabetes in either or both the parents was observed in 236 (90.07%) patients (Table 1).

Table 1 shows the demographic profile of patients including age groups, gender, duration of disease, fasting blood glucose levels, number of patients suffering from comorbid conditions, and complications and number of patients having family history of diabetes.

Table 1: Demographic profile of patients (n=262)

S. No.	Variables	N (%)
1.	Age range (years)	
	<30	5 (1.9)
	30-40	11 (4.19)
	40-50	18 (6.87)
	50-60	104 (39.69)
	60-70	79 (30.15)
	70-80	45 (17.17)
2.	Gender	
	Male	141 (53.82)
	Female	121 (46.18)
3.	Duration of disease (years)	
	1-5	42 (16.03)
	6-10	80 (30.53)
	11-15	54 (20.61)
	16-20	48 (18.32)
	>20	38 (14.50)
4.	Fasting blood glucose levels (mg/dl)	
	70-100	6 (2.29)
	101-125	11 (4.19)
	126-200	165 (62.97)
	>200	80 (30.53)
5.	Co-morbidity	
a.	With comorbidity	225 (85.87)
	Hypertension alone	76 (33.77)
	Hyperlipidemia alone	62 (27.55)
	Metabolic disorder	87 (33.21)
b.	Without comorbidity	37 (14.12)
6.	Complications	
a.	With complications	115 (43.89)
	Diabetic neuropathy	36 (31.30)
	Diabetic ketoacidosis	27 (23.47)
	Diabetic nephropathy	20 (17.39)
	Cardiovascular disease	17 (14.78)
	Hypoglycemia	11 (9.56)
	Retinopathy	4 (3.47)
b.	Without complications	147 (56.11)
7.	Family history of diabetes	236 (90.07)
a.	One parent	167 (70.76)
b.	Both parents	69 (29.23)

Polypharmacy was evident in the study as 176 (67.17%) prescriptions had 2-5 drugs. Of the antidiabetic drugs maximum number 185 (70.61%) had 2-5 drugs and only 67 (25.57%) prescriptions had <2 antidiabetic drugs. Insulin was used in 37 (14.12%) prescriptions. The most common route prescribed was oral in 208 (79.38%) prescriptions. Only 111 (42.36%) prescriptions were complete in terms of dose, route, strength, frequency, diagnosis, and dosage forms. Among the WHO core prescribing indicators the average number of drugs prescribed were 4.61/prescription. Merely 55 (4.54%) drug names were in generic forms. Only 45 (3.72%) were antibiotics and 67 (5.54%) were in injectable forms. Drugs on essential drug list (EDL) in prescriptions in accordance to the 19th list of 2015 were 526 (43.50%) (Tables 2 and 3).

Table 2 shows the prescription profile including number of drugs prescribed, number of single and combination antidiabetic drugs and insulin prescribed. It also shows the dosage forms used and completeness of prescriptions.

Table 3 shows the WHO core prescribing indicators including average drugs prescribed per prescription, drugs prescribed by generic names, antibiotics used, injectables used, and drugs used from EDL.

The total number of drugs prescribed in 262 prescriptions was 1209; hence, the average number of drugs per prescription are 4.61. Out of 1209 drugs, 556 (45.98%) were single antidiabetic drugs, 179 (14.81%) were a combination of antidiabetic drugs and 37 (3.06%) were insulin. Highest prescribed among other drugs were atorvastatin 86 (7.11%), aspirin 54 (4.46%), telmisartan 51 (4.22%), antibiotics 45 (3.72%), and

furosemide 40 (3.31%). Rest of the drugs prescribed were enalapril, nifedipine, hydrochlorothiazide, rosuvastatin and others including vitamins and antioxidants (Table 4).

Table 4 shows the various drugs prescribed – Single or combination antidiabetic, insulin, and other drugs according to the comorbid condition.

The most common single antidiabetic drug used was metformin 500 mg in 189 (33.99%) followed by glimepiride 2 mg in 71 (12.76%) and least prescribed was repaglinide 1 mg in 8 (1.43%) patients. The most common antidiabetic combination used was glimepiride 2 mg + metformin 500 mg in 62 (34.63%) and least used was glipizide 5 mg + metformin 500 mg in 3 (1.67%) patients. The most common insulin preparation used was insulin - soluble 30% + isophane 70% in 13 (35.13%) and least common was insulin soluble 50% + insulin isophane 50% in 6 (16.21%) patients (Tables 5-7).

Percentage cost difference of single antidiabetic drug ranges from 40.62 to 633.33, of combination antidiabetics ranges from 40 to 297.22 and insulin preparations ranges from 2.81 to 60.63 (Tables 5-7).

Table 2: Prescription profiles (n=262)

S. No.	Variables	N (%)
1.	Number of drugs prescribed in 262 prescriptions (polypharmacy)	
	<2 drugs	56 (21.37)
	2-5 drugs	176 (67.17)
	>5 drugs	30 (11.45)
2.	Total no of antidiabetic drugs prescribed in 262 prescriptions	
	<2 drugs	67 (25.57)
	2-5 drugs (including combinations)	185 (70.61)
3.	Insulin used in 262 prescriptions	37 (14.12)
4.	Antidiabetic combinations used in 262 prescriptions	166 (63.35)
5.	Dosage forms prescribed in 262 prescriptions	
	Oral	208 (79.38)
	Injectables	54 (20.61)
6.	Complete prescriptions in terms of dose, route, strength, frequency, diagnosis and dosage forms	111 (42.36)

Table 3: WHO Core prescribing indicators

S. No.	Core prescribing indicators	Value (%)
1.	Average drug prescribed	4.61
2.	Drugs prescribed by generic names	55 (4.54)
3.	Antibiotics used	45 (3.72)
4.	Injectables used	51 (4.21)
5.	Drugs on EDL in prescriptions (19th list 2015)	526 (43.50)

EDL: Essential drug list

Table 4: Drugs prescribed in 262 prescriptions (n=1209)

S. No.	Drugs prescribed	N (%)
1.	Anti-diabetic drugs single	556 (45.98)
2.	Anti-diabetic drug combinations	179 (14.81)
3.	Insulin	37 (3.06)
4.	Enalapril	23 (1.9)
5.	Telmisartan	51 (4.22)
6.	Nifedipine	31 (2.56)
7.	Furosemide	40 (3.31)
8.	Hydrochlorothiazide	38 (3.14)
9.	Atorvastatin	86 (7.11)
10.	Rosuvastatin	17 (1.41)
11.	Aspirin	54 (4.46)
12.	Antibiotics	45 (3.72)
13.	Others (vitamins and antioxidants)	52 (4.3)

Table 5 shows the frequency of single antidiabetics prescribed and their percentage cost difference.

Table 6 shows the frequency of combination antidiabetics prescribed and their percentage cost difference.

Table 7 shows the frequency of insulin preparations prescribed and their percentage cost difference.

The cost of monthly therapy for a diabetic patient as calculated from the patient's pharmacy bill ranged from INR 100 to 3000, maximum number of patients being in the cost range INR 100-500 in 148 (56.48%) patients followed by cost range INR 500-1000 in 69 (26.33%) patients (Table 8).

Table 8 shows the number of patients with their cost of monthly antidiabetic therapy.

DISCUSSION

Diabetes, a chronic disease which requires multiple drug therapy, is growing in an epidemic proportion. It requires lifestyle modifications along with many drugs which apart from controlling diabetes pose severe health risks. Since diabetes is a disease of elderly age group, there are various other comorbidities; hence, polypharmacy is common in such patients (which increases the risk of ADRs, drug interactions, and financial burden). Thus, we planned this pharmacoeconomic and drug utilization study in diabetic patients to observe the drug prescribing pattern, cost effectiveness and evaluate the rationality of the prescriptions. Assessing these factors will help improve drug usage, generic prescribing and selecting cost-effective drugs/therapy, appropriate doses, avoiding irrational drug usage thus decreasing the drug-drug interactions, ADRs and expenditure thereby improving health outcomes.

A total of 262 prescriptions of diabetic patients were analyzed. Demographic analyses show maximum numbers of patients were in the age group 50-60 years (39.69%). This result is in consistence with the study of Acharya *et al*. [10]. Furthermore, maximum number of patients were in the middle age group from 35 to 64 years which was comparable to the study of Das *et al*. [11]. The predisposition in the middle age group has negative socio-economic and psychological outcomes which adversely affects the quality of life. 16 patients (6.1%) patients were below 40 years age group indicating that Type II diabetes is increasing in the younger age group which warrants a strict lifestyle modification in those with family history of diabetes from an early age. Our study showed males preponderance, i.e., 141 (53.82%) as compared to females 121 (46.18%) which is in conformity with another previous study of Abdi *et al*. [12].

Fasting blood glucose levels were 126-200 mg/dl in maximum number of patients, i.e., 165 (62.97%) patients. This result is in conformity to the study of Assefa *et al*. [13]. Metabolic disorder was the most common comorbid condition associated with diabetes - 87 (33.21%) patients followed by hypertension in 76 (33.77%) and hyperlipidemia in 62 (27.55%) patients. This is in agreement to the study of Acharya *et al*. and Rataboli and Dang [10,14].

In our study most of the patients had diabetes for 6-10 years, found in 80 (30.53%) patients followed by 11-15 years in 54 (20.61%) patients. Thus, the most common duration of patients having diabetes was 6-15 years which was similar to the study of de Pablos-Velasco *et al.* [15]. We also found genetic predisposition of diabetes, i.e., either or both the parents were suffering from diabetes which was observed in 236 (90.07%) patients which is in consistence with other studies [16].

Diabetic complications were seen in 115 (43.89%) patients, out of which diabetic neuropathy was the most common 36 (31.30%) followed by diabetic ketoacidosis in 27 (23.47%) patients, diabetic

Table 5: Single anti-diabetic drugs used in order of frequency (n=556)

S. No.	Drugs	Total number of patients prescribed (%)	Max price per tablet/vial (Rs.)	Min price per tablet/vial (Rs.)	Percentage cost difference
1.	Metformin 500 mg	189 (33.99)	3.4	0.93	265.59
2.	Glimepiride 2 mg	71 (12.76)	13.2	1.8	633.33
3.	Glipizide 5 mg	66 (11.87)	1.9	0.75	153.33
4.	Vildagliptin 50 mg	54 (9.71)	27	19.2	40.62
5.	Glimepiride 1 mg	32 (5.75)	7.3	1.4	421.42
6.	Metformin 1000 mg	29 (5.21)	4.8	1.75	174.28
7.	Sitagliptin 50 mg	24 (4.31)	42.71	29.9	42.84
8.	Pioglitazone 30 mg	18 (3.23)	11.2	2	460
9.	Voglibose 0.2 mg	17 (3.05)	10.2	1.9	436.84
10.	Gliclazide 80 mg	15 (2.69)	7.8	2.9	168.96
11.	Glibenclamide 5 mg	12 (2.15)	1	0.36	177.77
12.	Acarbose 25 mg	11 (1.97)	7	4.2	66.66
13.	Pioglitazone 15 mg	10 (1.79)	7	1.2	483.33
14.	Repaglinide 1 mg	8 (1.43)	7.8	4.4	77.27

Table 6: Anti-diabetic drugs combinations used in order of frequency (n=179)

S. No.	Drugs	Total number of patients prescribed (%)	Max price per tablet/vial (Rs.)	Min price per tablet/vial (Rs)	Percentage cost variation
1.	Glimepiride 2 mg+Metformin 500 mg	62 (34.63)	14.3	3.6	297.22
2.	Glimepiride 1 mg+metformin 500 mg	44 (24.58)	8	3.7	116.22
3.	Pioglitazone 30 mg+metformin 500 mg	30 (16.75)	12.2	3.2	281.25
4.	Sitagliptin 50 mg+metformin 500 mg	18 (10.05)	50	22	127.27
5.	Glimepiride 2 mg+metformin 500 mg+pioglitazone 15 mg	13 (7.26)	16.6	5.5	201.81
6.	Voglibose 0.2 mg+metformin 500 mg	9 (5.02)	10	3.9	156.41
7.	Glipizide 5 mg+metformin 500 mg	3 (1.67)	1.4	1	40

Table 7: Insulin preparations used in order of frequency (n=37)

S. No.	Insulin preparations	Total number of patients prescribed (%)	Max price per tablet/vial (Rs)	Min price per tablet/vial (Rs)	Percentage cost variation
1.	Insulin - soluble 30%+isophane 70%	13 (35.13)	293	285	2.81
2.	Insulin - Glargine	11 (29.72)	763	475	60.63
3.	Insulin - NPH	7 (18.91)	239	208	14.9
4.	Insulin soluble 50%+insulin isophane 50%	6 (16.21)	169	126	34.12

NPH: Neutral protamine hagedorn

Table 8: Cost of monthly therapy (n=262)

S. No	Range	N (%)
1.	<100 INR	0 (0)
2.	100-500 INR	148 (56.48)
3.	500-1000 INR	69 (26.33)
4.	1000-1500 INR	27 (10.30)
5.	1500-2000 INR	9 (3.43)
6.	2000-2500 INR	7 (2.67)
7.	2500-3000 INR	2 (0.76)

nephropathy in 20 (17.39%) patients, cardiovascular complications in 17 (14.78%), hypoglycemia in 11 (9.56%), and least was retinopathy in 4 (3.47%) patients. This result was dissimilar to the study of Assefa *et al*. held in Ethiopia [13] where diabetic ketoacidosis was the most frequent complication reported as there was unaffordability of insulin, lack of self-monitoring of glucose levels and low levels of education, all of which are much better in India. Diabetic neuropathy was the most frequent complication reported here because of indifferent attitude of patient who continues to ignore minor symptoms until it becomes a major problem.

Our study clearly demonstrated polypharmacy as 176 (67.17%) prescriptions had 2-5 drugs. The most common route prescribed was oral in 208 (79.38%) prescriptions as it was an OPD based study and only insulin was given in the injectable (subcutaneous) form only when the blood glucose levels were not being controlled by antidiabetic drugs alone. This shows better awareness and adherence of doctors to the prescriptions guidelines in diabetes.

The WHO core prescribing indicators showed that average number of drugs/prescription is 4.61 which is a high number. Moreover, only 4.54% drugs were written in their generic names, rest had brand names written confirming the role of pharmaceutical companies influencing the prescription patterns. Thus, there is a wide gap in knowledge and practice of physicians who should be encouraged to prescribe generic drugs as it provides consistency in prescriptions and also helps to curtail the cost. In our study, 3.72% of patients were prescribed antibiotics and 4.21% took the drugs in injectable form. Drugs prescribed from the 19th EDL 2015 were only 43.5% which shows that physicians prefer to use newer drugs in the market.

The most common single antidiabetic prescribed in our study was metformin 500 mg in 33.99% of patients followed by glimepiride 2 mg in 12.76% and glipizide 5 mg in 11.87% indicating that biguanides and sulfonylureas are still the most preferred antidiabetic medications. Glimepiride and glipizide were preferred among sulfonylureas as they have less incidence of hypoglycemia. These results of our study are in conformity to other previous studies of Acharya *et al*. and Sultana *et al*. [10,17]. Among the newer group gliptans were commonly used – vildagliptin and sitagliptin showing the trend of prescribing novel

drugs by the physicians. Insulin was used only in 3.06% patients as mostly this study was conducted on OPD patients. Our results greatly differ from the study of Johnson *et al*. where 25.3% patients were prescribed insulin [18]. This difference may be due to difference in study population, better patient compliance and enhanced patient awareness, regular self-monitoring of blood glucose levels so as to have a better control of their blood sugar levels, hence a decreased need of insulin as an add on to antidiabetic drugs.

A total of 179 antidiabetic combination drugs were used in our study. Among them the most commonly used was glimepiride + metformin in 106 (59.21%) patients. Our results are in agreement to the study of Sivasankari *et al*. [19] and Das *et al*. [11]. This drug combination is the most rational among antidiabetic drugs as both drugs are acting through diverse mechanisms. Sulfonylureas are insulin secretagogues and biguanides are insulin sensitizers. Insulin preparations were used in 37 (14.12%) patients which mostly consists of soluble 30% + isophane 70% in 13 (35.13%) patients. Glargine and NPH or neutral protamine hagedorn were used to a lesser extent.

Other than antidiabetic drugs the most commonly used medications were atorvastatin 86 (7.11%), aspirin 54 (4.46%), telmisartan 51 (4.22%), antibiotics 45 (3.72%), and furosemide 40 (3.31%). The use of statins, aspirin, ARBs, and diuretics suggest that hypercholesterolemia, hypertension, and hence, metabolic syndrome that includes a combination of all these diseases was common in these patients. Antibiotic use was found in patients suffering from secondary infections due to diabetic complications.

On evaluating the pharmacy bill of patients, we found that the monthly cost of antidiabetic therapy in most of the patients were in the range of 100-500 INR. Our findings were similar to the study of Acharya *et al.* [10]. Since diabetes is a chronic disease, sometimes even requiring life-long therapy, the high prescription cost can be a burden especially in middle-income households and may even lead to non-compliance.

We calculated the percentage cost difference of antidiabetic drugs, combinations, and insulin prescribed. Glimepiride had the maximum percentage cost difference, i.e. 633.33 and gliptans had the least percentage cost difference. These results demonstrate that glimepiride has more brands available in the market as compared to other drugs, thus the physicians should prescribe the most economical brand in the market to reduce the total cost of drug therapy. The findings of our study were corroborated with the study of Jadhav and Adhav [20] who also showed that glimepiride had the maximum cost variation. Gliptans had the least percentage cost difference as these are newer drugs and very few brands are available in the market. Among the combinations glimepiride + metformin had the maximum percentage cost difference and glipizide + metformin had the least percentage cost difference illustrating more number of brands for glimepiride + metformin. Insulin preparations also show lower percentage cost differences as few brands are available in the market are all are almost equally priced. Hence, cost factor in antidiabetic therapy is important for patient compliance and the clinicians should wisely chose the cheapest brand or the generic antidiabetic drugs for reducing the economic burden and improving the health status.

CONCLUSION

In our study, we found that average number of drugs per prescription was high indicating toward polypharmacy. The single most commonly prescribed drug was metformin and the most common combination used was glimepiride 2 mg + metformin 500 mg. In most patients, the cost of monthly antidiabetic therapy was relatively high, and hence, there is need of rational prescribing including more generic drugs so that the therapy is economical for the patient.

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