



A Population Based Study on Diabetes Drug Prescription Pattern and Awareness Among Health Care Providers in Jharkhand

Medicine

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ABSTRACT

Background: To know the pattern of diabetic drug prescription and awareness about diabetes among primary health providers in the Jharkhand, India. **Material and Methods:** Study was conducted in 30 areas of Jharkhand. Non-pregnant diabetic adults were surveyed through 31 diabetic camps. Detailed history, weight, height, waist circumference, body mass index recorded. Fasting or random blood glucose, glycated hemoglobin, lipid profile measured and blood pressure recorded. **Results:** 961 diabetic patients were included in the study (59.93% male) with the mean age of 51.38±14.76 years. One in four patients were on alternative approaches for diabetes control. Among OHAs, sulphonylureas (SU) were the most commonly prescribed oral agents in 73.40% of patients followed by metformin in 26.00%. Amlodipine and atenolol was the commonest anti-hypertensive drug prescribed in 50.99% either in combination or as individual drug. For primary care providers, glycemic target was the mainstay of diabetes treatment with less emphasis on blood pressure control and no emphasis on lipid reduction. **Conclusion:** Sulphonylureas were the commonest anti-diabetic drug prescribed by the primary care providers followed by metformin. Insulin was prescribed to 0.52% only. Combination of amlodipine and atenolol was the commonest anti-hypertensive drugs prescribed.

KEYWORDS:

Diabetes, OHA, diabetes drug, prescription, primary care provider

INTRODUCTION

Diabetes is a major public health problem. Every fifth diabetic in the world is an Indian. Diabetes leads to various complications affecting cardiovascular, eye, foot and kidney and requires multiple risk reduction strategies in addition to glycemic control. Moreover, primary care providers (PCP's) provide 80% of all office visits for diabetes world-over. The focus of the government run national health programs are on communicable diseases with no emphasis on non-communicable diseases. Drug utilization study will provide a useful insight into the existing prescribing pattern in the state. Drug prescribing studies can identify irrational prescribing pattern and can suggest modification in the drug-prescribing pattern among the adult diabetic patients.

Material and Method

This study was conducted in 30 areas of the Jharkhand. The subjects were non-pregnant adults (>18 years), who had been diagnosed diabetes at least six months prior to the date of survey, from March 2012 to March 2013. The date and place of camp decided one month in advance. The camp date was disseminated to people through vernacular newspapers, local public representatives, and local health providers. Detailed treatment history noted from treatment card available. Age, gender, weight, height, no of visit in last one year and time spent by Primary Care Provider was noted. Ninety-three treating doctors surveyed through direct questioning or through restructured questionnaire prepared in advance.

Results

Total 961 diabetic patients were included in the study (59.93% male) with a mean age of 51.38±14.76 years. Baseline parameters of the patient has been tabulated in Table 1. Of total 961 patients, 70.03% (673) patients were on oral hypoglycemic agents (OHAs), 0.52% (5) on insulin and 25.29% (243) on alternative approaches (herbal, yoga, ayurvedic drugs and local indigenous remedies) for diabetes control (Table 2). Sulphonylureas were the most common prescribed OHAs in 73.40% (498) of patients followed by Metformin in 26.00% (175).

Table 1. Demographic profile of 961 patients

Mean duration of disease	12 month-19 years 42.37±16.26 month
Male	576(59.93%)
Female	385(40.06%)
Mean Age	51.38±14.76 years (24-88)

Mean age of male	53.14±11.46 years
Mean age of female	50.24±10.91 years
Mean BMI	23.26±4.91 (16.24-38.1)
Mean follow up visit in 1 year	1.47 ± 1.78 (0-5)
Average time spent by treating physician on each visit	3.92 ± 1.86 min (1-10 min)

Frequencies of various OHAs prescribed are tabulated in Table 2. Glimperide was the commonest SU. Metformin used either once a day or 500mg twice a day. Two hundred fifty-three (253) patients were on anti-hypertensive drugs. Combination of atenolol and amlodipine was the commonest anti-hypertensive drug prescribed in 50.99% (129).

Only 14% knew the diagnostic cut off value (either fasting or post-prandial) of plasma glucose. None of primary care provider was aware about oral glucose tolerance test (OGTT) and A1C for the diagnosis of diabetes.

Fear of hypoglycemia with medicine (physician fear) and reluctance on the part of patients for initiating drug so early are also reasons for not initiating pharmacological therapy. All believe in life style change (dietary changes and exercise) for diabetes management but patients hardly follow the advice of food restrictions and exercise which involve lifelong habits and will prefer taking pills which is simple to adopt rather than adopting these changes.

For the reason of high sugar contents in rice, potato, fruits and sweets, all PCP's blindly advice against consumption of these food items. Average time spent by a PCP is hardly 3.92 min/patient.

Table 2. Anti-diabetic drug profile of 961 patients

	%(N)
Number of patients on oral hypoglycemic agents	70.03% (673)
Number of patients on Insulin	0.52% (5)
Number of patients on non-pharmacological measures	25.29% (243)
Number of patients not on any therapy	4.16 % (40)
Patients on different oral hypoglycemic agents	70.03% (673)

Sulphonylureas	73.40%(498)
Metformin	26.00 %(175)
Metformin alone	3.57% (24)
Metformin + glimepiride	13.97% (94)
Metformin+glibenclamide	3.56% (24)
Metformin+glipizide	0.44% (3)
Metformin+gliclazide	1.04% (7)
Metformin+glimepiride+pioglitazone	1.63% (11)
Metformin+vildagliptin	1.78% (12)
Patients on different Sulphonylureas	73.40% (498)
Glibenclamide	28.23% (190)
Glimepiride	39.52% (266)
Glipizide	3.41% (23)
Gliclazide	2.82% (19)

All agree that diabetic patient do not come for follow-up regularly (average visit in one year is 1.47) and mostly come when they feel symptomatic and/ or when their blood sugar is elevated on testing. 68.82% (64) doctors were aware about chronic complications associated with diabetes but were not aware how to prevent them.

Table 3. Anti-hypertensive drugs prescription profile

Antihypertensive drugs prescribed	253 patients
Amlodipine and atenolol	50.99% (129 pts) {96 in combination+27 on amlodipine alone+ 6 on atenolol alone}
Amlodipine and telmisartan	40.71% (103) { 91 in combination and 12 on telmisartan alone}
Enalapril	8.30% (21)

All primary care physicians believe:

a) Glycemic target as the mainstay of diabetes treatment. They put less emphasis on blood pressure control and no emphasis on lipid reduction and on blood thinner. They believe only blood glucose control is important in reducing the diabetes related chronic complications. They have idea that blood pressure control and cholesterol reduction doesn't have role in reducing diabetes related chronic complications hence don't use anti-platelet agent and lipid lowering drugs. b) They follow the patients either with fasting and/ or post-prandial blood glucose level. They don't know the importance of A1C, lipid profile, fundus examination and urine for albumin. c) Sulphonylurea is the first line drug in treatment. It is the most common prescribed anti-diabetic drug by their seniors: the so call 'carry-on effect' of seniors. It is available in Government supply and is also the main anti-diabetic promoted by pharmaceutical companies, easily available and the most potent anti-diabetic drug; they believe. 71% PCP said that the most common OHA emphasized in diabetic management in under-graduate teaching and during internship was SU. They were not aware that it causes weight gain and only 18% knew it causes hypoglycemia. Metformin optimum dosage and its contraindications was not known in 64 % of PCP. They were not aware when insulin should be started and at what dose. Hypoglycemia with insulin is a major fear for them. They believe that insulin means last stage of diabetes. Amlodipine and atenolol combination is the most common anti-hypertensive drugs prescribed. This combination is most commonly used by their seniors and in addition, this combination is available in government hospital. They were not knowing cardiovascular protective effects of renin-angiotensin system inhibitors in diabetic patients, therefore, do not use

them. All agree that they receive insufficient training in their medical school in managing diabetic patients according to consensus recommendation with target goals.

Discussion

Drug prescription studies among diabetic patients evaluate the prescribing pattern of anti-diabetic agents of treating physicians. It also helps to assess their attitude of prescribing other risk reduction drugs. The proportion of patients on metformin was strikingly low (26%), and patients did not receive the consensus recommended first line drug. Like many other developing countries, most (¾th) diabetic patients in this state were taking SUs for glucose control, a trend seen more than a decade ago in developed countries, where metformin is replacing SUs rapidly. The proportion of adults with diagnosis of diabetes on non-pharmacological measures was substantially high (1 in 4 patient) but the proportion taking insulin was strikingly low (0.52%) and similar trend in the use of alternative measures and use of insulin have been seen in several other studies. The misconception about allopathic drugs that once started have to be used life-long with potential of having many side effects are the reasons for using alternative measures in the present study. Fear of hypoglycemia is the reason for not prescribing insulin in this study.

Our study suggests that providers should adopt appropriate and aggressive approach with early use of insulin therapy in diabetes management.

The less prescription of RAS inhibitors in our study, speculate that physician does not recognize the effectiveness of RAS inhibitors in reducing cardiovascular risk in diabetic patients.

Despite of recommendation of statin use in diabetic patients above the age of 40 years with one or two CV risk factors, their use seems to be sub-optimal in this study. The care gap in diabetic individuals in this study is due to physician factors (clinical inertia, lack of updated knowledge, and lack of time) . Patients factors for the gap are (non-compliance with medications and life style modifications and follow-up, belief in alternative measures, financial constraints and lack of education and awareness). Primary care physicians need to be targeted for optimum care for diabetes. They provide most of care for patients with type 2 diabetes. The change needs to originate at the level of medical school imparting patient oriented teaching program. There should be updating of knowledge as per changing treatment protocols.

Conclusion

Primary care doctors are not aware about treating guidelines and treatment goals. Patients have high faith in alternative approaches which led to much below the recommended standards of medical care in this region of the country. However, despite the widespread dissemination of professional society recommendations, very little reaches down to the level of primary care physicians and is an important reason for not treating patient according to consensus recommendations. It is required to have regular short course training in the management of diabetes for primary care physicians which will reduce the long-term complications and mortality associated with this disease.

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