

## A STUDY ON DRUG UTILIZATION PATTERN OF ANTI-DIABETIC DRUGS IN RURAL AREAS OF ISLAMPUR AND KASEGAON AT MAHARASHTRA

Sahil Shah, Samadhan Shelke, Priyanka Annaso Patil\* and CS. Mgdum

Department of Pharmaceutical Chemistry, Rajarambapu College of Pharmacy, Kasegaon, Tal. Walwa, Dist. Sangli, Maharashtra, India.

### ABSTRACT

Diabetes a chronic disease is associated with significant morbidity, complications with poor glycemic control. Hence, meticulous management is necessary. A prospective observational study was carried out in adult diabetic patients visiting the outpatient Departments of General Medicine. Diabetes mellitus was observed to be highest in patients with the age group of 60-70 years, affecting 58.5% males and 41.5% females. We observed that 56 patients were treated with sulfonylurea, 38 were treated with biguanide. The choice of drug should be based economic status, associated conditions. Rational prescribing should focus on dose and duration as well as interaction with other medications.

**Keywords:** Drug utilization, anti-diabetic drugs, prescribing pattern.

### INTRODUCTION

Drug utilization has been defined as the marketing, distribution, prescription, and use of drugs in a society, with emphasis on the resulting medical and social consequences<sup>1</sup>. The principal aim of drug utilization studies (DUS) is to facilitate the rational use of drugs in population. DUS is an essential part of pharmacoepidemiology as it describes the extent, nature and determinants of drug exposure and it is used to identify treatment adherence problems. Diabetes has emerged as a major healthcare problem in India. India has the largest population of diabetes in the world. The international diabetes federation (IDF) estimates the number of people with diabetes in India will reach 80 million by the year 2025. A survey depicts that 4% of adults in India suffered from diabetes in the year 2000 and is expected to increase to 6% by the year 2025<sup>2</sup>. The world health organization (WHO) has projected that the global prevalence of type-2 diabetes mellitus will more than double from 5 million in 1995 to 300 million by 2025. Between 1995 and 2025, there will be a 35% increase in worldwide prevalence of diabetes mellitus, from 4 to 5.4%<sup>3</sup>.

A projected to rise from 171 million in 2000 to 366 million in 2030 is noted worldwide. The urban population in developing countries is projected to double between 2000 and 2030<sup>4</sup>. Nowadays the incidence is increasing in rural parts of India due to urbanization, obesity, unsatisfactory diet, sedentary life style, etc<sup>5</sup>. Since the literature review on drug utilization pattern in rural parts of India yielded a very few data, we planned to carry out a study to evaluate the drug utilization pattern among diabetic patients in a rural population of Tamilnadu, South India.

Since 1995, a dozen orally administered diabetes medications or combination of medications for the management of type-2 diabetes mellitus have been approved by FDA<sup>6</sup>. They play a primary defense function against hyperglycemic events in comparison to insulin therapy<sup>7</sup>. Traditionally in oral hypoglycemic agent therapy, sulphonyl ureases have always been the agents of first choice, while bisguanides and  $\alpha$ -glucosidase inhibitors were unpopular<sup>8</sup>. A good number of diabetes patients suffer from cardiovascular disease such as hypertension, hyperlipidaemia and ischemic heart disease.

## MATERIALS AND METHODS

This prospective observational household study was carried out for a period of 3 months from January to March 2015 at Kasegaon village and Islampur. A total of 250 patients were screened, out of which 150 being a known case of DM under treatment of both genders and aged between 18 to 80 years were included in the study.

A suitable data collection form was designed to collect and document the data. Data collection form included the provision for collection of information related to demographic details of the patient, occupation, social status, past medical history, family history, duration of diabetes mellitus, category of the drug prescribed, dose, dosage form, frequency, duration, total number of drug prescribed, number of anti diabetic drug prescribed, number of antibiotics prescribed, number of injections prescribed, drugs prescribed by generic name, patients knowledge about the drugs, clinical data, class of anti diabetic drugs prescribed and coexisting illness. All the necessary and relevant information were collected from prescription and interviewing the patients.

## RESULTS

Out of the 150 patients enrolled in the study, 88(58.5%) were males and 62 (41.5%) were females. Among the study population, the greatest number of patients were in the age group of 51-60 years.

Among 150 antidiabetic drugs prescribed, 56 patients (37%) were prescribed with Sulfonyl ureas, 28 patients (19 %) with Thiazolidinediones, 10 patients (7%) with 4-dipeptide, 38 patients (25 %) with Biguanides and 18 patients (12%) with Metformin and Pioglitazone, 29 patients (10.28%) with Glibenclamide and Metformin, 13 patients (4.61%) with Miscellaneous.

Details of the class of antidiabetic drugs prescribed for enrolled patients are presented in Table 2.

## ACKNOWLEDGMENTS

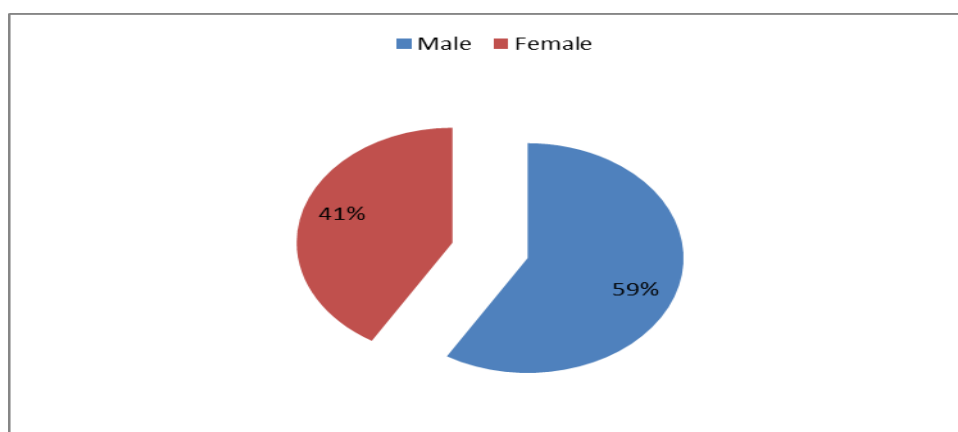
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**Table 1: Sex Wise Distribution of Patients**

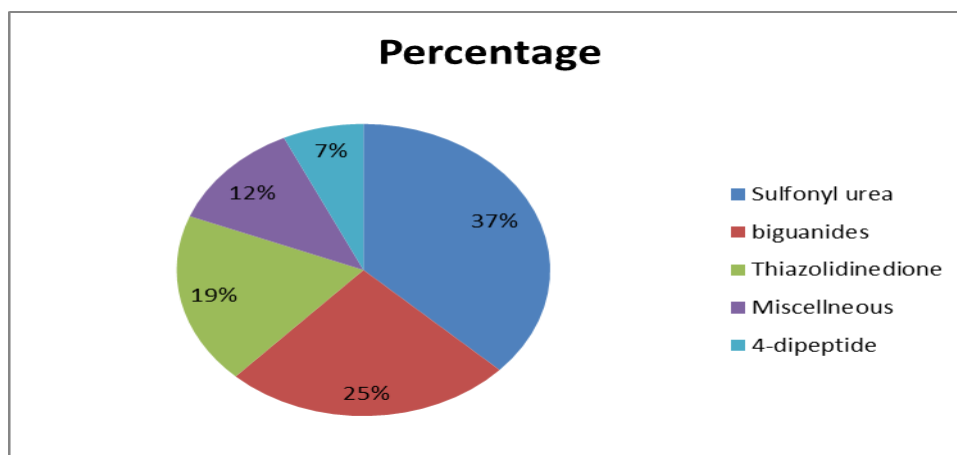
Sex	Number of patients (n=150)	Percentage (%)
Male	88	58.5
Female	62	41.5

**Table 2: Class of ant diabetics**

Class	Number of patients (n=150)	Percentage (%)
Sulfonyl ureas	56	37
Thiazolidinediones	28	19
4-dipeptide	10	7
Biguanides	38	25
Miscellaneous	18	12



**Fig. 1: Distribution of Diabetic Patient according to sex (n=150)**



**Fig. 2: Class of antidiabetic drug used in percentage among the study population**

## REFERENCES

1. WHO. The selection of essential drugs. WHO Tech Rep. 1997;615:36.
2. King H, Aubert RE and Herman WH. Global burden of diabetes, 1995-2025: prevalence, numerical estimates and projections. Diabetes Care. 1998;21:1414-31.
3. Sierra GN. the global pandemic of diabetes; for American journal of diabetes medicine. 2009.
4. Sarah Wild, Bchir MB, Gojka Roglic PHD, Anders Green MD, MD, PHD. DR Med Scirichard Sicree, MBBS, Mphhilarly King, MD, DSC Global Prevalence of Diabetes estimates for the year 2000 and projections for 2030 DIABETES CARE. 2004;27(5).
5. Bakssas I and Lunde PKM. National drug policies: the need for drug utilization studies. Trends Pharmacol Soc. 1986;7:331.
6. Libman I and Arslanian S. Type 2 diabetes in childhood: The American perspective. Horm Res. 2003;59(Suppl 1):69-76.
7. United Kingdom Prospective Diabetes Study Group. Intensive blood glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). Lancet. 1998;352:837-853.
8. Wysowski DK, Armstrong G and Governale L. Rapid increase in the use of oral anti-diabetic drugs in the United States, 1990- 2001. Diabetes Care 2003; 26:s1852-1855.
9. Rosenstock J. Management of type 2 diabetes mellitus in the elderly: special consideration. Drugs Aging. 2001;18(1):31-44.
10. Hermann LS, Schersten B and Bitzen PO. Therapeutics comparison of metformin and sulphonylurea alone and in combinations. A double blind controlled study. Diabetes Care 1994;17:1100-9.
11. Riddle MC. Oral pharmacologic management of type 2 diabetes. Am Fam Physician. 1999;60:2613-20.
12. Anderson RJ, Lustman PJ and Clouse RE. Prevalence of depression in adults with diabetes: a systematic review. Diabetes 2000;49(Suppl 1):A64.