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Der Pharmacia Lettre, 2015, 7 (5):33-37  
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## A prospective study on drug utilization pattern of anti-diabetic drugs in rural areas of Islampur, India

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### ABSTRACT

Diabetes mellitus is in alarming rise from 40 million to 70 million people by 2025 in India. Drug Utilization studies help to identify the treatment of adherence problems and improve proper drug usage. The present work was undertaken to evaluate the drug utilization pattern of anti-diabetic drugs in DM patients. A prospective observational study was carried out at rural areas nearby to Islampur for a period of 3 months. 90 patients were screened having DM and a structured questionnaire was used to collect data and analysis done. The prevalence was about 6.6% Type I DM and 93.33% of them about 50% patients were in above 50 years of age. Totally 76.66% of patients were on monotherapy and Metformin (Glycomate) was commonly prescribed. In combination therapy, Glibenclamide and Metformin (35.86%) were mostly. Type II DM was treated effectively with both Insulin and Oral hypoglycemic drugs. The average cost of Therapy during the Study was found to be Rs. 100-300/month in 70% of population under study. In the study carried out most of the prescriptions were rational, but further improvement is needed. 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, diabetes, questionnaire, monotherapy, prescriptions.

### INTRODUCTION

Diabetes mellitus is a metabolic disorder with common denominator of hyperglycemia, arising from a variety of pathogenic mechanisms. It has emerged as an epidemic both in the developing and developed countries and shows no signs of regression [1].

Diabetes mellitus (DM) is a major health growing problem and an important cause of prolong ill health and early death. It was the sixteen leading cause of global mortality in 1990 [2]. DM is a chronic progressive metabolic disorder characterized by hyperglycemia mainly due to absolute (Type 1 DM) or relative (Type 2 DM) deficiency of insulin hormone. DM virtually affects every system of the body mainly due to metabolic disturbances caused by hyperglycemia [3].

Diabetes results from the failure of the pancreas to produce a sufficient amount of insulin. Hormone that regulates the body's use of glucose is insulin the pancreas produces a sufficient amount of insulin, but if the insulin is blocked from the body's cells and cannot be used. This causes patients to have abnormally high amounts of sugar in their urine and blood. Diagnosing a patient with diabetes is more complicated than measuring the glucose level of urine only one time. The diagnosis involves several hours of glucose-tolerance tests (GTT). These tests measure the rate in which sugar is removed from the bloodstream and after the test are complete, high glucose level indicates insufficient insulin and the patient is diagnosed with diabetes [4]

Currently, India leads the world with the largest number of diabetic subjects and this is expected to further rise in the coming years. Given the high prevalence of diabetes in Indians with over 50 million diabetics already, and the numbers expected to increase to 87 million by the year 2030, this could place considerable burden on the health budgets of this country [5]. The study of prescribing pattern is a component of medical audit that does monitoring and evaluation of the prescribing practice of the prescribers as well as recommends necessary modifications to achieve rational and cost effective medical care [3].

Therefore, drug utilization studies, which evaluate and analyze drug therapy are more meaningful, and observe the prescribing attitude of physicians with the aim to provide drugs rationally. Keeping all these facts in consideration, the present study was designed to analyze the prescribing patterns of antidiabetic drugs at Nearby Villages to Islampur, Sangli Dist, India.

## MATERIALS AND METHODS

A randomized observational household study was carried out on 90 diabetic patients of both type I and II was conducted for a period of 3 months from Jan to March 2015 at Nearby Villages to Islampur, Sangli Dist, India. The major occupation being agriculture. Patients were adults and geriatrics of both the genders and different BMI.

Door to door visits were made by the investigators with the help of health workers. A structured questionnaire was explained in the vernacular language. Demographic data, detailed medical history, medications for diabetes mellitus, questions regarding lifestyle, dietary pattern, and exercise programme were recorded in the study proforma. Subsequent visits were done at monthly intervals. These data were used for evaluation.

## RESULTS AND DISCUSSION

Data of 90 diabetic patients was collected and studied the prescription pattern. Most of the patients belong to the age group above 60 years (50%) followed by 40-60 years (40%). They had Type 2 Diabetes mellitus. Out of 90 patients who were being studied, 76.66% patients were on mono therapy. The patients were either on monotherapy consisting of Insulin, metformin or sulphonyl urea or they were on combination therapy. 6% patients were taking insulin among whom blood glucose levels within range. We found that the most commonly prescribed drug in the patients was glycomate (26.66%), Insulin (6 %), metformin with sulphonyl urea (20%), The most effective combination of drugs in combination therapy category was insulin & metformin (14.66%).

We found out that most people didn't monitor their glucose levels regularly and most weren't doing or advised any form of exercise and diet control. These are important for glycemic control in Type 2 diabetic patients. Hence the patients should be counseled about the importance of diet control and exercise. Also they should be advised to monitor their blood glucose levels regularly so that appropriate drug regimen should be prescribed according to their needs. We also determined that combination therapy isn't being prescribed much although it is found in literature that most experts prefer combination therapy over monotherapy [7-9]. Therefore, the doctors should seek alternatives when they see that their target for glucose level within normal range is not being met.

Fig 1 & 2 : Distribution of the diabetic patients according to sex and age (n=90)

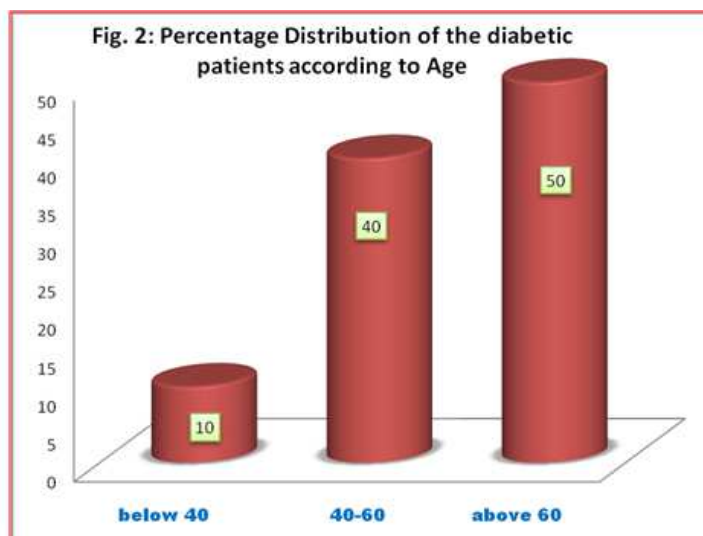
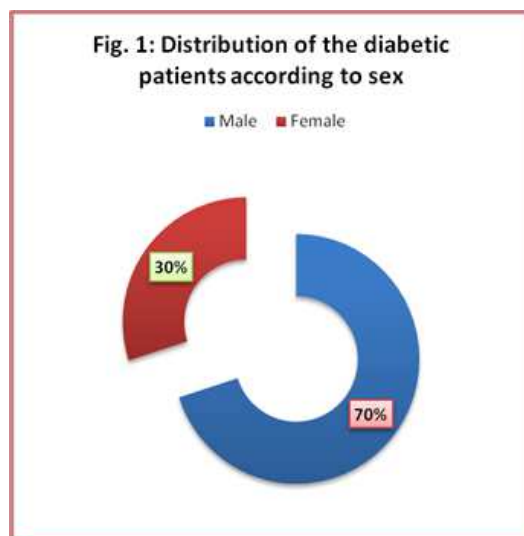


Fig 3: Distribution of the diabetic patients according Type of Diabetes (n=90)

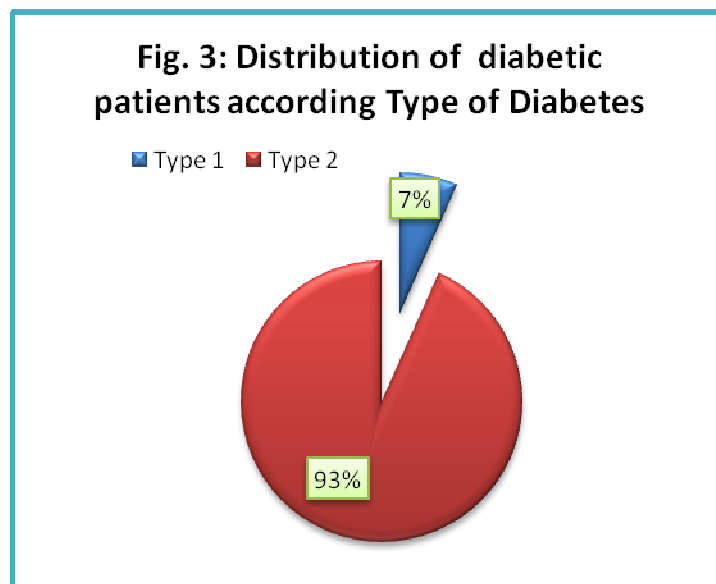


Fig 4: Anti- diabetic drug Therapy pattern among the study population

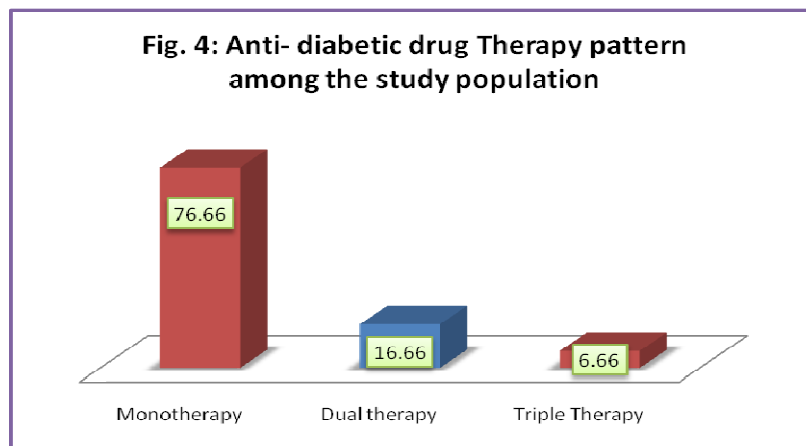


Fig 5: Class of Antidiabetics used among the study population

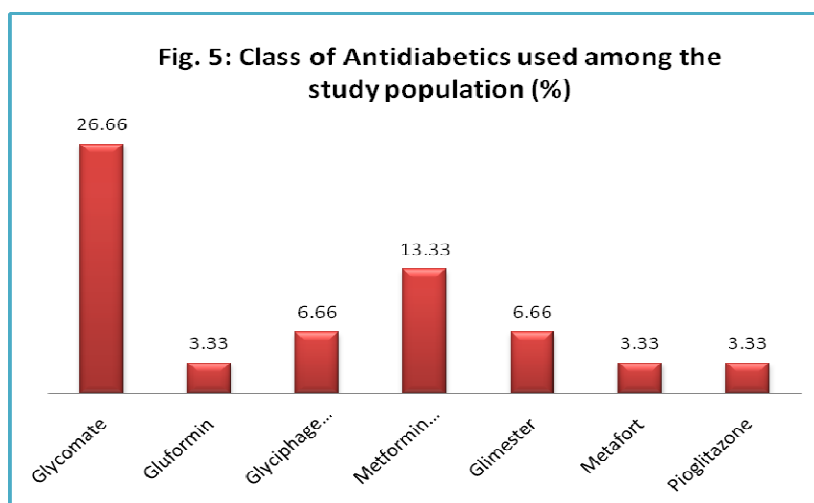


Fig 6: Dosage form of Antidiabetics used among the study population

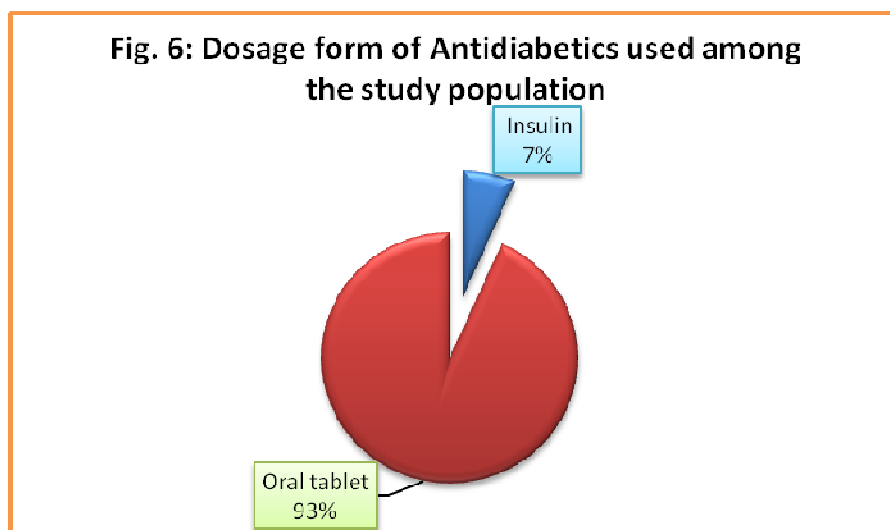
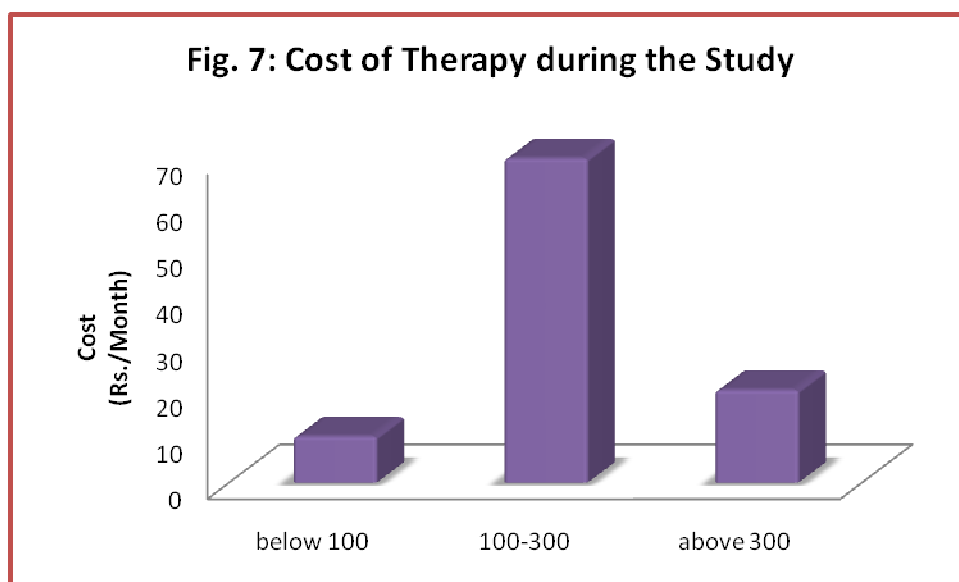


Fig 7: Cost of Therapy during the Study



### CONCLUSION

Diabetes should be managed properly to enhance the quality of life of the patient. In the study carried out most of the prescriptions were rational, but further improvement is needed.

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. This can be done by prescribing a proper drug regimen consisting of hypoglycemic agents as well as diet control and exercise. Efforts from both patients and the physician should be made to meet the target glucose levels and have a better and healthy life.

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