

EVALUATION OF PRESCRIPTION PATTERN OF ANTIDIABETIC DRUGS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Diabetes Mellitus is a chronic progressive disorder incompletely understood metabolic condition chiefly characterized by hyperglycemia and caused due to impaired insulin secretion, resistance to tissue action of insulin or a combination of both. The present study was conducted to discover the prescription pattern of antidiabetic drugs from in-patient department of District Hospital Singtam, East Sikkim. The study was performed using prescription of around 30 patients in District Hospital Singtam, East Sikkim suffering from Type 2 Diabetes Mellitus. This was a prospective case study carried out on the patient record files admitted in the in-patient department from March 2021-April 2022. Out of the 30 prescription of antidiabetic drugs 53.33% were for men and 46.66% were for women indicating that men predominated over women. Greater prevalence in this age group maybe due to change in lifestyle, lack of exercise and stress. Metformin and other commonly prescribed drugs such as pantoprazole, ceftriazone, ondansetron were mostly prescribed. Intravenous route of administration of drugs was most commonly prescribed most probably due to 100% bioavailability. More information on prescribed drugs and the side effects is required for ensuring patients safety.

KEYWORDS: pantoprazole, ceftriazone, ondansetron.

INTRODUCTION

Diabetes mellitus is chronic complex illness progressive associated with state of high blood glucose level, or hyperglycemia, occurring from deficiencies in insulin secretion action or both. The new classification system identifies four types of diabetes mellitus i.e type 1, type 2, Diabetes Gestational diabetes, and another specific type of diabetes mellitus.^[1]

According to World Health Organization, (WHO) Adverse drug reaction (ADR) is defined as a response to a drug that is noxious and unintended and which occurs at doses used normally in man for prophylaxis, diagnosis, or therapy of disease or the modification of physiological function. One-third of people with diabetes experience at least one ADR. However, there is notable inter-individual heterogeneity resulting in patient harm and unnecessary medical cost. Genomics is at the forefront of the research to understand inter-individual variability and there are many genotype drug response associations in diabetes with inconsistent findings.^[2]

The prevalence of type 2 diabetes mellitus is increasing globally and has reached epidemic proportions in many countries, worldwide, 415 million people have diabetes, and number of people with disease is set to rise beyond 645 million by 2040. In India more than 65.1 million people have been diagnosed with the disease and

estimates suggest 89 million patients by 2030 and about 56% of patients will be from urban regions.^[3]

The prospective observational study was carried out in the District hospital Singtam, East Sikkim from November 2021 to April 2022. During this study we visited in-patient department of male and female general ward and evaluated the prescription pattern. All the patients with diabetes mellitus admitted under general medicine who were exposed to any ADR in the hospital and those who were admitted for the treatment of ADR (i.e the reason for admission was ADR) will be included in the study.^[4]

MATERIALS AND METHODS

The present study was conducted to discover the adverse drug reaction of anti-diabetic drugs from in-patient department of District Hospital Singtam, East Sikkim. The district hospital Singtam is the tertiary critical care hospital in the state, it provides the health services to the people in and around the state. Drug Selection indicators selected for the present study includes the percentage of male and female patients, number and percentage in various age groups, percentage of one/two drug combination, type of dosage forms, percentage of the utilization of different categories of anti-diabetic drugs and the percentage of the utilization of different categories of anti-diabetic drugs and percentage of anti-diabetic drugs in combination with other category drugs.

The study was performed using prescriptions of around 30 patients in District Hospital Singtam East Sikkim, suffering from diabetes. Various age group patients and patients with different types of diabetes have been selected for the study. All the data, which was collected from the in-patient department were shown in the form of the tables. This was a prospective case study carried out in the in-patient department in district hospital Singtam, East Sikkim from November 2021 to April

2022. Prescriptions of newly registered patients were studied. Patients data such as age, name, gender, occupation and data on prescribed drugs that included the generic and brand name of drug, dosage form, route of administration, discharged medication and complaints on admission, vital signs, urine and blood analysis, physical examination and so on were recorded on a customized data collection data sheet in an approved manner.^[5]

Table no: 1: Patient Profile Form (Page 1).

Patient Name:	
Age:	Sex: M/F
DOA:	
DOD:	IP No:
Occupation:	
Weight:	Height:
Address:	
Complaints on admission	
Past Medical History	
Personal History	
Physical Examination	
General	
Vital Signs	
Provisional Diagnosis	
Routine lab investigation	
Hematology	
Urine Analysis	
Final Diagnosis	

Table no.2: Patient Profile Form (Page 2).

Brand Name	Generic Name	Freq	Dose	Route	Days										
					1	2	3	4	5	6	7	8	9	10	11
Clinical Progress															
Discharge Medication															
Any Other															

RESULT

Out of the 30 prescriptions of anti-diabetic drugs studied, 53.33% were for men and 46.66% were for women indicating that men predominated over women. Maximum patients with diabetes mellitus type 2 were of the age group 46-60 years (Table 4) followed by the age group of 61-75. Greater prevalence in this age group may be due to change in lifestyle, lack of exercise and stress.

(Table 5) indicates that metformin and other drugs such as pantoprazole were mostly prescribed.

Other commonly prescribed drug was a ceftriazone, ondansatrom. Intravenous route of administration was most commonly prescribed, probably due to 100% bioavailability of the drugs.

Table 3: Age and sex distribution of diabetic patients.

Age group in years	Men	Women	Total
0-15	-	-	-
16-30	-	-	-
31-45	2	2	4
46-60	6	5	11
61-75	4	3	7
76-90	3	2	5
80 and above	1	2	3
Total(%)	53.33%	46.66%	30

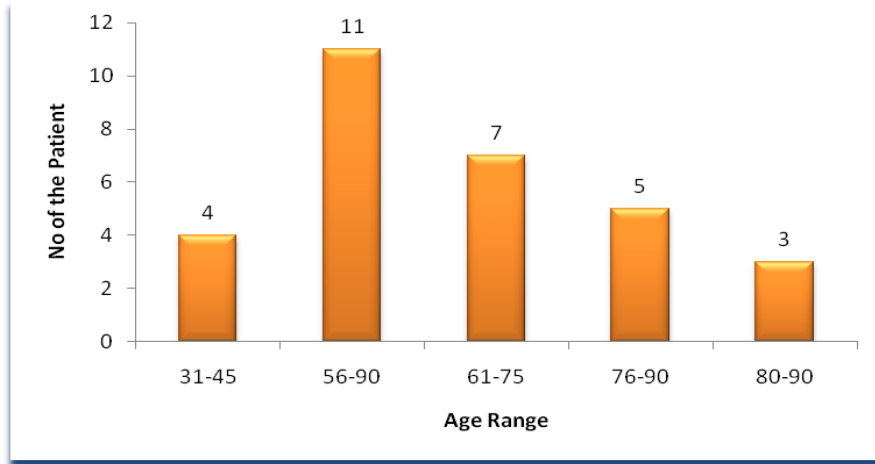


Figure 1: Age distribution for anti-diabetic patients.

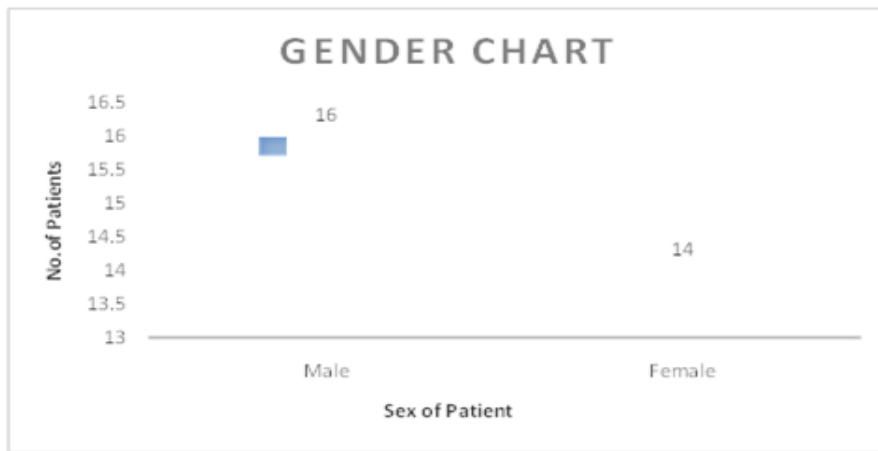


Figure 2: Gender chart for anti-diabetic patients.

Table 4: Percentage of drugs prescribed.

Name of Drug.	Dosage Form	Number of times prescribed.	% of total anti-diabetic Drugs prescribed.
Metformin	Tablet (500mg)	7	23.3%

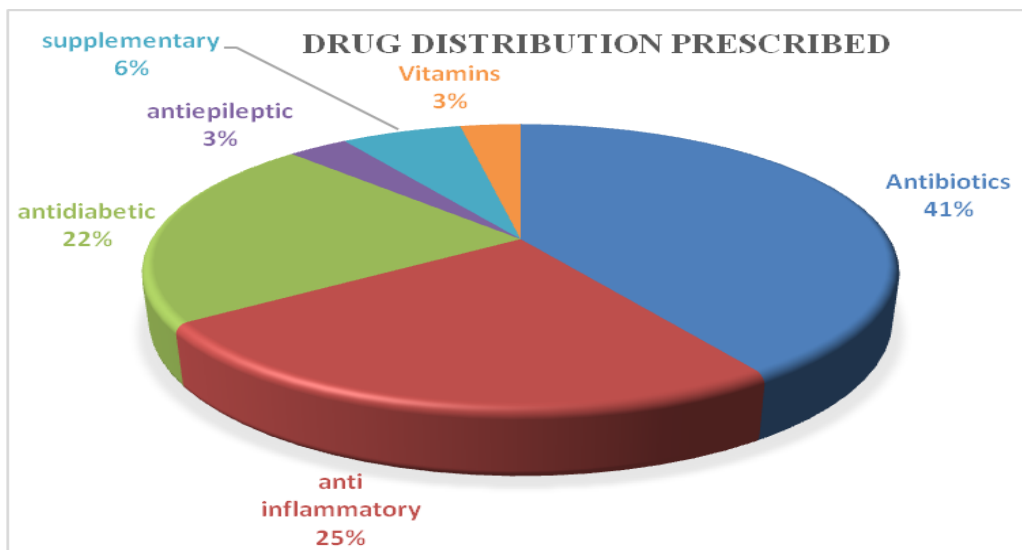


Figure 3: Distribution of drugs prescribed.

IN (Figure 3) A total of 41% of antibiotics were prescribed, ceftriaxone was mostly prescribed followed by the injection pectaz, tablet doxycycline, capsule metronidazole and betadiene gargle. 25% of anti-inflammatory drugs were prescribed out of which injection voveran was mostly prescribed followed by tablet diclofenac, zerodol gel and tab calpol. 22% of antidiabetic drugs were prescribed, and metformin was the only antidiabetic drug prescribed in our study. Tablet paracetamol were prescribed in 3% anti-epileptic group of drugs, followed by capsule Glycip was prescribed in supplementary category and vitamin category included capsule Fulrich.

DISCUSSION

The aim of the present study was to find out the prescription pattern for the type I and type II diabetic mellitus patients admitted in District Hospital Singtam, East Sikkim from 2021 to 2022. The permission was obtained from the Head Office of the Health Department Tashiling secretariat, Gangtok East Sikkim, which was approved by the chief medical officer of the hospital to conduct the study in the medical record department of the hospital.

The anti-diabetics drug which was given to the patients according to our survey/study was found out that they have been given through oral and intravenous route (IV) which includes metformin and pantoprazole respectively, which was the most commonly prescribed drug. These drugs they helps to support when target goals are not attained with life alteration. Out of the 30 prescriptions of the patients which we studied, 53.33% were found on men and 46.66% were found on women. This study was in accordance with the previous studies like Tritanda Deb *et al.*^[6]

Boceuzzi S *et al* where 53.36 found in men and 44.63 was found on women and also 56.66% were found on men and 43.33% were found on women respectively in which this show us that according to our survey and the previous paper studied were found out that female have the least count in DM T2 as compared to men.^[7]

In our study the occurrence of DM T2 was more for the age range of 46-60 years (36.66%) followed by the age group of 61-75 years (23.33%) in which maximum patients with diabetics mellitus type 2 was found.

One of the previous study it was found that the age group involved in the diabetic mellitus type 2 cases was of the age 60-69 years with the mean age group of 64.6%.^[8]

According to our study, diarrhoea, loss of appetite, vomiting, fever, etc. were the most commonly complaints of the patients to the physicians during their admission according to the survey of the in-patients in District Hospital Singtam, East Sikkim.

On the study of the previous paper of diabetic mellitus type 2 cases patients were reported to have diarrhoea, nausea, vomiting which show that these are the common symptoms shown by the DM T2 patients.^[9]

According to our survey/study treatment was made to the patients having diabetes mellitus type 2 with some of the anti-diabetics drugs which include metformin which is the most commonly prescribed drug which falls on the brand name of Glucophage, Glucophage XR and also under the drug class called as non-sulfonylureas followed by pantoprazole under the brand name of Protonix and the drug class called proton-pump inhibitors which helps heartburn, acid reflux and also gastroesophageal reflux disease (GORD). And also some antibiotics prescribed by the physicians to the patients includes ciprofloxacin and metronidazole which is the most commonly prescribed antibiotics which falls under the brand name Cipro, Cipro XR and Metro gel, Vandazole respectively.^[10]

So according to the previous paper studied under Sierra *et al* shows that Biguanide, Pioglitazone under the generic name of metformin/canagliflozin and thiazolidinedione anti-diabetic respectively. It shows us that metformin is the most commonly prescribed drug according to both our survey and the paper studied.^[11]

CONCLUSION

In an in-patient department of District Hospital Singtam, East Sikkim we found that the prescription of antidiabetic drugs for men were predominated over women. Various age group of patients have been studied with patients of different types of diabetes have been selected for the study. Maximum patients with Diabetes Mellitus Type 2 were of the age group 46-60 years and followed by the age group of 61-75 years. This study showed that greater prevalence in this age group maybe due to change in lifestyle, lack of exercise and stress. In this study we found that maximum patients with antidiabetic drug such as metformin were mostly prescribed and other supporting drugs such as pantoprazole, ceftriaxone, ondansetron, were mostly prescribed. Other treatment study such as intravenous route of administration was most commonly prescribed most probably due to 100% bioavailability of the drugs.

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