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TO STUDY CLINICAL PROFILE AND DRUG PRESCRIPTION PATTERN AMONG DIABETIC PATIENT

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ABSTRACT: The present study was aimed to analyze the prescription pattern of the diabetic patients with clinical profile with specific objective to determine the current trend of anti-diabetic drugs. According to the report obtained from the study, the male patients are more prone to diabetes mellitus than females. Type 2 diabetes mellitus is widely observed where study was carried out. There is the need for change in the lifestyle of diabetic patients as per observed social habits. The diabetes patients were in the age group of 51-60 years. Hypertension affected more than 29.73% of diabetic patients according to the present study. The prescription pattern of antihypertensive drugs and cardiovascular drugs are based upon the guideline's combination drugs by majority of the diabetic patients. The drugs pattern of oral hypoglycemic is also based upon the National list of essential medicines (NLEM 2015) and Dual therapy with metformin + Glimperide is widely prescribed among these subjects. Proper dose calculations of insulin have been carried out based upon the BMI levels and various other diagnostic parameters of diabetic patients (such as HbA1c levels and blood glucose levels). The blood glucose levels were properly maintained after the treatment of the disease.

INTRODUCTION: The main objective of this study was to highlight the current prescribing trends in Diabetes mellitus patients. To analyze the demographic information of the enrolled patients. To analyze the patterns of use of major pharmaceutical drug classes. To know the current use of anti-diabetics and their rational use. To identify and analyze the prescriptions with polypharmacy. It also helps us to provide advantageous feedback to prescribers in order to improve their prescribing behaviour.

We planned to carry out the study in diabetic patients with focus on outlook of "How the anti-diabetic drugs are being prescribed" which helps in understanding various factors such as over and under consumption of drugs, greater use of newer expensive medicines particularly Human analogue insulin. With increase in prevalence of Diabetes, there may be increase in associated complications and co-morbidities which leads to increase in the number of drugs in the prescription which in turn leads to irrational drug use as a result of polypharmacy.

Research Design and Methodology:

Area of Study: Department of Medicine, Vivekanand Hospital and Research Centre, Latur.

Research Design: A prospective observational study was conducted on inpatients admitted to

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Medicine wards at Vivekanand Hospital and Research Centre, Latur.

❖ Patient with gestational diabetic is also excluded.

Data Collection: Primarily data collection has to be collected from patient case papers.

Static Tool: The data were entered in Microsoft Excel 2007 and analyzed as frequency distributions and percentages to assess the prescribing indicators in SPSS (Statistical Package Social Science) Version 20.

Research Tool: Patient Profile Form.

Sample Size: The study population consists of 37 patients both male and female.

RESULT: To assess prescription pattern of the Diabetic patients, the data has been collected from 37 patients admitted to VHRC hospital. And the observations are as follows:

Selection of Subject: The study subject was taken on the basis of inclusion and exclusion criteria.

Inclusion Criteria:

- ✓ Patients diagnosed with Diabetes Mellitus
- ✓ Patient of both genders.
- ✓ Age group above 18

Demographical Data:

Gender & Area Wise Distribution: Among 37 patients involved in study majority is of male patient 19(51.35%) after that female patient is 18(48.65%), among all area wise majority of patient is female from urban area 14(37.84%) and lowest population is female from rural area 4(10.81%).

Exclusion Criteria:

- ❖ Patient without diabetes mellitus.
- ❖ Pediatric patients are excluded from study.

TABLE 1: GENDER AND AREA WISE DISTRIBUTION

Gender	Address		Total
	Rural	Urban	
Male	7.00 18.92%	12.00 32.43%	19.00 51.35%
Female	4.00 10.81%	14.00 37.84%	18.00 48.65%
Total	11.00 29.73%	26.00 70.27%	37.00 100.00%

Distribution Based on Age Groups: Among the 37 patient’s majority of patients are 12(32.43%) from the age group 51-60 Yrs. The minimum No.

of patients are 2 which are from the age group Up to 40 Yrs.

TABLE 2: DISTRIBUTION BASED ON AGE GROUP

Age Group	No. of Patient	Percentage
Up To 40 Yrs.	2	5.41%
41-50 Yrs.	6	16.22%
51-60 Yrs.	12	32.43%
61-70 Yrs.	9	24.32%
Above 71 Yrs.	8	21.62%
Total	37	100.00%

Clinical Profile:

Distribution based on Range of HbA1C In Patients: HbA1C provides an average of how high blood sugar levels have been over a period of time,

in the study majority of the population had HbA1c ranging above 10.6% that is 17(45.95%). The minimum patients are in rage of up to 6.5% i.e. 5(13.51%)

TABLE 3: DISTRIBUTION BASED ON RANGE OF HBA1C IN PATIENTS

HbA1C Range	No. of Patients	Percentage
Up To 6.5%	5	13.51%

6.6-8.5%	7	18.92%
8.6-10.5%	8	21.62%
Above 10.6%	17	45.95%
Total	37	100.00%

Prescription Pattern in Patients: Based on the observation study carried out to analyze the pattern of drugs in diabetic mellitus, we have noticed that Combination of glimepiride and metformin is mostly used i.e. 11(29.73%). Combination of metformin+vildagliptin and metformin+H.A.I is least used i.e. 1(2.70%).

TABLE 4: PRESCRIPTION PATTERN IN DIABETIC PATIENT

Drug Name	Frequency	Percentage
Glimepiride	4	10.81%
Glimepiride+Metformin+Vildagliptin	2	5.41%
Glimepiride+Metformin	11	29.73%
Glimepiride+Metformin+Voglibose	3	8.11%
Teneligliptin+Metformin	4	10.81%
Metformin+Vildagliptin	1	2.70%
Metformin+H.A.I	1	2.70%
H.A.I	9	24.32%
Glimepiride+H.A.I	2	5.41%
Total	37	100.00%

Distribution Based on Drug Prescribed: Among all 37 patients observed in study most commonly dual drug therapy is used in 19(51.35%) patients. In study there are minimum patients is of poly-therapy i.e. 5(13.51%).

TABLE 5: DISTRIBUTION BASED ON DRUG PRESCRIBED

No. of drug prescribed	Frequency	Percentage
Monotherapy	13	35.14%
Dual therapy	19	51.35%
Poly-therapy(>3drug)	5	13.51%
Total	37	100.00%

Distribution Based on ROA (Route of Administration): Among all 37 observed patients 25(67.57%)patients are on oral drug therapy, 9(24.32%) patients are on injectable drug therapy and 3(8.11) patients are on both oral and injectable drug therapy.

TABLE 6: DISTRIBUTION BASED ON ROA (ROUTE OF ADMINISTRATION)

RoA	Frequency	Percentage
Oral Drug	25	67.57%
Inject able	9	24.32%
Both	3	8.11%
Total	37	100.00%

Distribution Based on Co-morbidity: Among the study population 16(43.24%) patients having only DM, no co-morbidity present. After those 11(29.73%) diabetic patients having a HTN as a co-morbidity.

TABLE 7: DISTRIBUTION BASED ON CO-MORBIDITY

Condition	Frequency	Percentage
DM	16	43.24%
Shock	1	2.70%
Parkinsonism	1	2.70%
Htn	11	29.73%
Cancer	2	5.41%
Collitis	1	2.70%
Dyslipidemia	3	8.11%

Aki	1	2.70%
Post Covid-19	1	2.70%
Total	37	100.00%

DISCUSSION: According to the result obtained male patients are more than that of the female, male patients account for 51.35% of the total data collected. This may be due to their social habits and lifestyle changes.

Poor blood flow in the legs and feet that can lead to infections, ulcers, and possible amputation (removal of a body part by surgery, such as toes or feet), retinopathy (an eye disease that can cause blindness), peripheral neuropathy (damaged nerves to the arms and legs that causes numbness, pain, weakness, and poor coordination) and people with HTN as a co-morbidity are 29.73%. Prevalence of hypertension is high in diabetes patients. It may be because of metabolic action of insulin, which indirectly affects the metabolism of the body. Hypertension and diabetes are interrelated disorders and independent causative factors associated with cardiovascular disease, cerebrovascular accidents, peripheral vascular disease and renal disorders.

In the present study majority of the patients have HbA1c levels above 10.6 and regular monitoring of the blood sugar levels helped in controlling the blood sugar level for 45.95% of the diabetes patients.

Pharmacotherapy for both the types of diabetes mellitus has dramatically changed in last few years. Several new classes of drugs have been introduced. Symptomatically patients have been treated with various types of insulin and oral hypoglycaemic therapy, depending on their requirements. Patients with HbA1c equal to 7% or less are usually treated with lifestyle measures and an agent which will not cause hypoglycaemia. Those with HbA1c > 7% but < 8.5% could be initially treated with single oral agents, or low dose combinations. Patients with higher initial HbA1c may benefit from initial therapy with two oral agents or even insulin. The best oral therapy for obese patients with type 2 DM without contraindications is to start metformin. Lean patients can be treated with insulin secretagogues. If the therapeutic goal is not attained with initial therapy, additional oral agents can be added. Type 2 DM should be treated by matching

therapy to the suspected underlying problem. Triple therapy is often with metformin, a sulfonylurea, and a TZD or DPP-4 inhibitor, but a good alternative is to use metformin, a TZD, and a GLP-1 agonist, which can lower glucose levels and increase satiety, reducing the weight gain potential of a TZD, and still has a low risk of hypoglycemia. If the HbA1c is > 8.5% to 9% on multiple therapies, insulin therapy should be considered.

In our study majority of the diabetic patients have been given Dual therapy with either oral hypoglycemic drugs or insulin. The majority of the patients have received Glimpiride+Metformin as their oral therapy, and rapid acting insulin. Additionally, this drug does not cause weight gain and therefore can be prescribed in obese patients and has lesser chance of hypoglycemic episodes compared to SUs. In addition to this, metformin may reduce the incidence of diabetes-related complications. In the newly diagnosed obese patients SUs and insulin are more effective than their lifestyle modifications. Since there is evidence of Dual therapy the patients should be educated and guided regarding their therapies and its positive and negative consequences. In order to prevent irrational use of drugs, frequent monitoring can help the patient for better outcome.

CONCLUSION: The present study was aimed to analyze the prescription pattern of the diabetic patients with clinical profile with specific objective to determine the current trend of anti-diabetic drugs.

The study was carried out in the VHRC hospital from JULY 2021 to August 2021 and the data was collected from the 37 diabetic patients associated with other co morbidities.

According to the report obtained from the study, the male patients are more prone to diabetes mellitus than females. Type 2 diabetes mellitus is widely observed where study was carried out. There is the need for change in the lifestyle of diabetic patients as per observed social habits. The diabetes patients were in the age group of 51-60 years. Hypertension affected more than 29.73% of

diabetic patients according to the present study. The prescription pattern of antihypertensive drugs and cardiovascular drugs are based upon the guideline's combination drugs by majority of the diabetic patients.

The drugs pattern of oral hypoglycemic is also based upon the National list of essential medicines (NLEM 2015) and Dual therapy with metformin+Glimepiride is widely prescribed among these subjects. Proper dose calculations of insulin have been carried out based upon the BMI levels and various other diagnostic parameters of diabetic patients (such as HbA1c levels and blood glucose levels). The blood glucose levels were properly maintained after the treatment of the disease. The Dual therapy was high in the above study; it's due to various co-morbidities in the diabetic patients. In order to avoid irrational use of drugs and decrease the polypharmacy, certain IV fluids and drugs which are not that essential according to patient condition (as multivitamins, analgesics & antibiotics) can be avoided in prescription. As there is the high rate of polypharmacy it may also increase the cost of the prescription. The cost of the prescription can also be minimized by using generic compared to brand names. The adverse drug reactions can be minimized by replacing the drugs with novel therapeutic agents like Glucagon-like peptide agonist, Dipeptidyl peptidase inhibitors and sodium-glucose transport inhibitors. The management of drug interactions should be done by the clinical significance and correlation.

Limitations and Future Directions:

Limitations: The present study did not include all the diabetic patients visited to hospital during the study period because of logical issues. Such enrolment would have given much clear data without exclusion of any patients. There is no data base or disease registry available. Cost of illness would have been done as previous or incidence-based study.

Future Directions: Prescription pattern study can be continued for few more years so that the trend could be assessed clearly averaging out year to year variations. Incidence or prevalence-based population study for cost illness can be conducted.

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