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PRESCRIPTION ANALYSIS IN DIABETES MELLITUS

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ABSTRACT

A study was carried out in medicine ward (in patient) of a Government Hospital, Orissa. A total of 60 patients were enrolled in the study. Of them 42 were male & 18 were female patients. The male patient were greater in number than female. According to the age distribution of patients the study was carried out in the range of 10-80 years. More numbers of patients were seen in range of 51-60years.The most common occurrence of diseases found in the medicine ward type-2 Diabetes mellitus with Coronary artery disease, hepatomegaly and others. The drug interaction and some adverse drug reactions were reported. Cost of the therapy per day also included in this study.

KEYWORDS

Adverse Drug Reactions, Drug interaction, Coronary artery disease, Hepatomegaly.

INTRODUCTION

Prescribing practice studies, aggregate data or health facility indicators may indicate that there is over or under-consumption of medicines and qualitative studies may indicate why certain health staff and patients behave the way they do. However, such studies do not provide detail about the exact nature of the irrational use of such details may concern incorrect medicine choices, incorrect dose, prescribing drugs that cause adverse drug reaction or drug interactions and the use of expensive drug when cheaper ones would do. From the literature survey various method of Rational treatment of diabetes mellitus[1], analysis of individual-level prescription data[2],Pharmaco-epidemiological study of prescription patterns[3],prescription database study[4],Prevalence and ant diabetic medication prescribing[5] ,Evaluation of prescribing practices[6],Prescription drug use and costs[7],Drug interactions in prescriptions[8],prescription for elderly people[9] were reported. But in present study the data

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is collected from various diabetic patients in a Government Hospital of Orissa.

METHODOLOGY

Study site:

The study was conducted in the medicine ward (in patient) of a Government Hospital, Orissa.

Study design:

- A total 60 patients enrolled in the study.
- A data collection form (fig-1) was designed to collect patients' data including therapeutics management during hospitalization.

Figure 1

Data collection form

PROFORMA

Patient Details:
Name:
Age:
Sex:
Reason for admission:
Medical History:
Medication History:
Co-morbid conditions(if any):
Lab data:
Diagnosis:
Therapeutic Management:

Sl No.	Drug/Dose	Schedule	D_1	D_2	D_3	D_4	D_5	D_6	D_7

Duration of therapy:
Cost of therapy:
Patient knowledge of drugs:
1.Name of the drug(s):
2.Correct strength of the drugs:
3.Dosage schedule:

Inclusive criteria:

All the diabetes mellitus patients admitted in the department of medicine were included in the study. Only inpatients were included in the study.

Exclusive criteria:

- Out patient department excluded from this study.

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- Pregnant women also excluded from this study.

Study procedure:

- The pooled data were analyzed to find the prescribing pattern of the drugs used in diabetes mellitus patients.
- Analyzed drug-drug interaction, ADR &cost with the help of Micromedex, IDR med click database & other standard textbook (for drug interaction).The identified drug interactions were noted for further evaluation.
- The drug interactions, which were evaluated, were made as report that includes the drug combination, effect, severity and clinical management.

Diabetes is chronic, incurable condition that affects millions of people across the World. If not adequately managed, it can result in a range of complications that have clinical, social and economic implications. In addition to achieving optimal glycemic control, it is essential that coexisting hypertension and dyslipidaemia are identified and treated. In this the prescribing practices in diabetes mellitus patients were evaluated and monitored from time to time during the study period.

(i) Age Distribution: (Fig-2 & 3)

The age distribution in diabetes mellitus patients was assessed. The majority of patients belong to 51-60 categories. This was followed by 41-50 and 61-70 age groups.(Table-1)

RESULT AND DISCUSSION

Table 1

AGE WISE DITRIBUTION

Age group in Year	Total No. of patients	No. of Male	No. of Female	% Distribution	% of Male	% of Female
<30	0	0	0	0	0	0
31-40	4	0	4	6.66	0	0
41-50	14	6	8	23.3	10	6.66
51-60	18	4	14	30	6.66	13.33
61-70	14	10	4	23.3	16.33	23.33
71-80	8	4	4	13.3	6.66	6.66
>80	2	2	0	3.33	3.33	6.66

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Fig-2 Graph represents the data from table-1

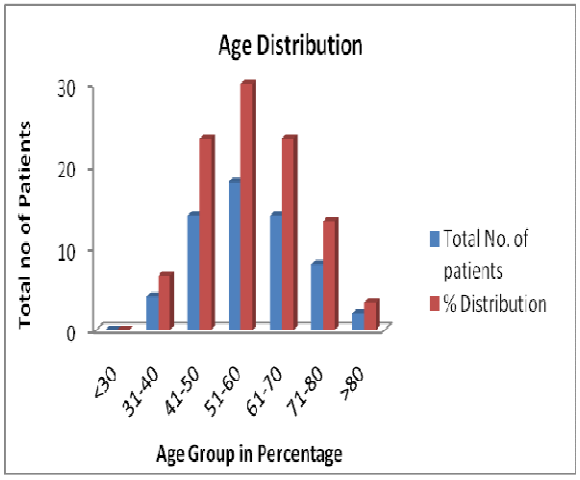
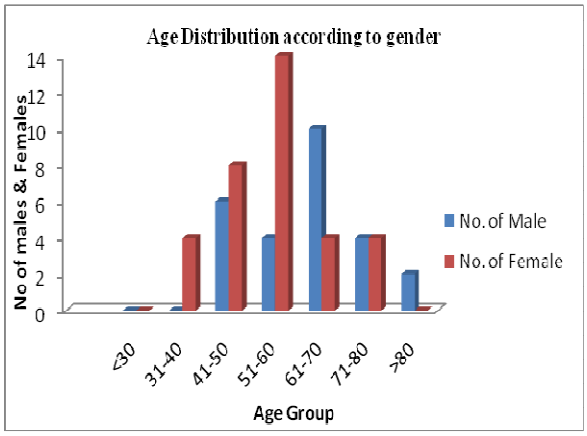


Fig-3 Graph represents the data from table-1



(ii) Sex Distribution: (Fig-4)

Majority of patients under study belongs to male group (n=42).Female patients were less in number (n=18). (Table-2)

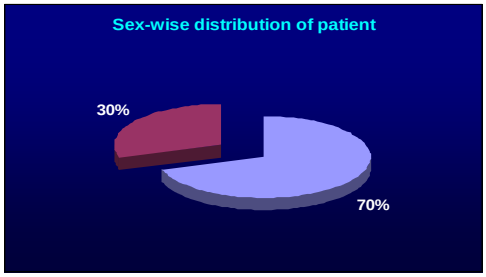
Table2

SEX DISTRIBUTION OF PATIENTS

Sex	No. of Patient	Percentage Distribution
Male	42	70
Female	18	30

Figure 4

Graph represents the data from table-2



(iii) Diabetes patients with co-morbidities:

(Fig-5)

Most common disease associated with diabetes was found to be hypertension (n=12) followed by ketosis (n=11) and by coronary artery disease (n=9).Other diseases found to be associated with diabetes was found to be COPD, meningitis, seizures, TB, hepatomegaly and renal failure.(Table-3)

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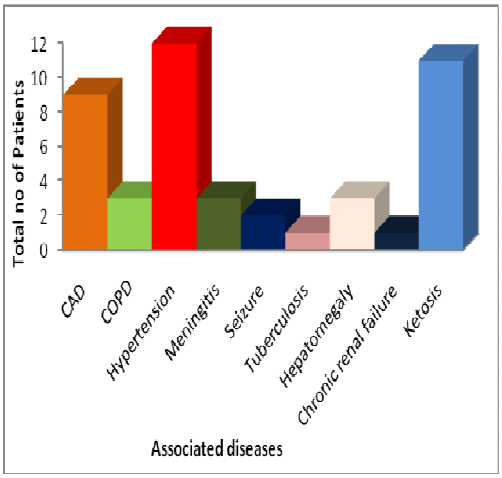
Table3

DIABETES PATIENTS WITH OTHER CO-MORBIDITIES

Associate diseases	Total no. of Patients	% (Percentage)
Coronary artery disease (CAD)	9	15
Chronic obstructive pulmonary disease (COPD)	3	5
Hypertension	12	20
Meningitis	3	5
Seizure	2	3.3
Tuberculosis	1	1.6
Hepatomegaly	3	5
Chronic renal failure	1	1.6
Ketosis	11	18.3

Figure 5

Graph represents the data from table-3



(iv) Drug Interaction: (Fig- 6, 7&8)

A drug interaction is said to occur if the effects of one drug changed by the presence of another drug. The most frequent was found to be Enalapril with aspirin followed by Enalapril with Isosorbide dinitrate. According severity it was found that 6 under moderate category, 4 minor and 2 major drug interactions were detected.

Table 4

FREQUENTLY OCCURRED DRUG INTERACTIONS

Drug combination	No of prescription	Percentage
Nifedipine + Insulin	1	1.66
Enalapril + Aspirin	3	5.00
Enalapril + Isordil	2	3.33
Enalapril + Diazepam	1	1.66
Enalapril+ Insulin	2	3.33
Enalapril + Frusemide	1	1.66
Insulin + Frusemide	1	1.66
Isordil + Frusemide	1	1.66

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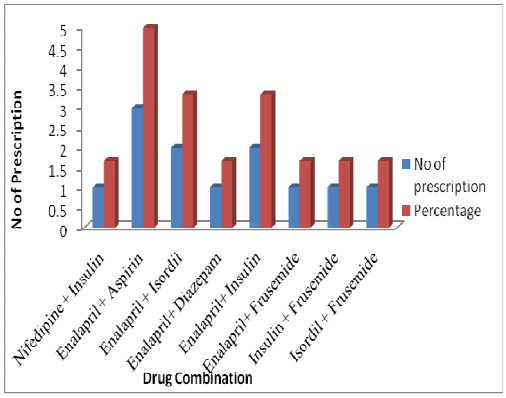


Figure 6 ***Graph represents the data from table 4***

Table5

MAJOR SEVERITY DRUG INTERACTIONS

Drug combination	No of prescription
Digoxin + Frusemide	1
Enalapril + Aspirin	3
Enalapril + Frusemide	1
Cefotaxim + Frusemide	1
Heparin+ Aspirin	1

Figure 7

Graph represents the data from table-5

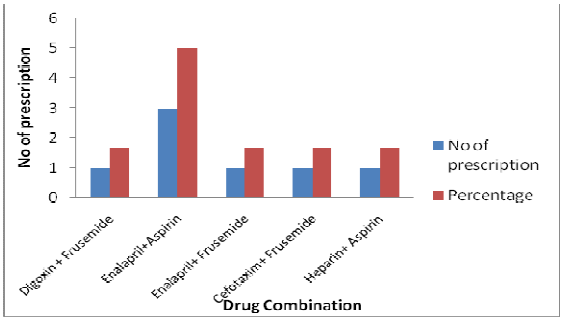


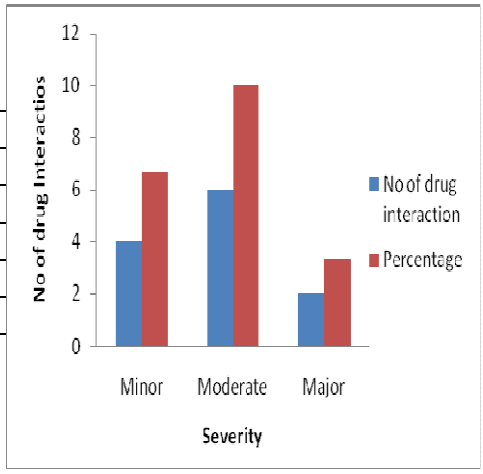
Table-6

SEVERITY OF DRUG INTERACTION

Severity	No of drug interaction	Percentage
Minor	4	6.66
Moderate	6	10.00
Major	2	3.33

Figure 8

Graph represents the data from table-6



(v) Adverse Drug Reaction: (Fig-9)

Most common adverse drug reaction was found to be dizziness (3.33%) followed by vomiting, nausea (1.66%).Others found were pruritis and diarrhea. (Table-7)

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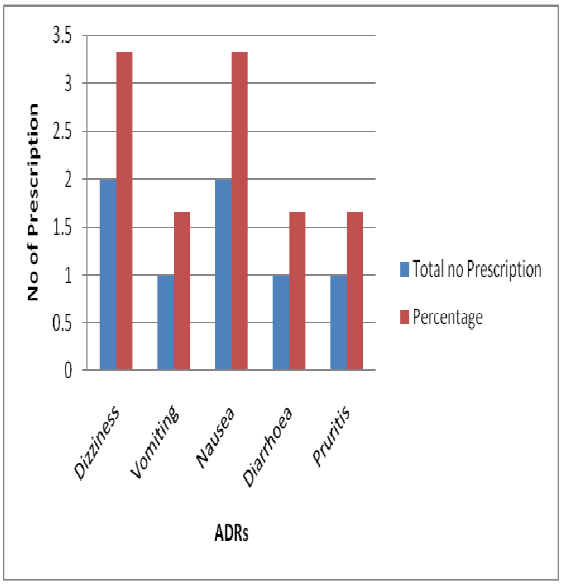
Table 7

ADVERSE DRUG REACTIONS

ADRs	Total no Prescription	Percentage
Dizziness	2	3.33
Vomiting	1	1.66
Nausea	2	3.33
Diarrhea	1	1.66
Pruritis	1	1.66

Figure 9

Graph represents the data from table-7



(vi) Cost of Therapy: (fig-10)

The maximum cost of therapy was found to be Rs.51-150. (Table-8)

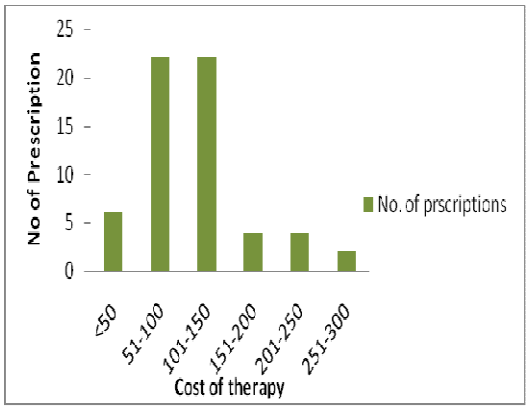
Table8

COST OF THERAPY DURING THE STUDY

Cost of therapy	No. of prescriptions
<50	6
51-100	22
101-150	22
151-200	4
201-250	4
251-300	2

Figure 10

Graph represents the data from table-8



CONCLUSION

The study was carried out in the Medicine Department of a Government Hospital, Orissa. Drug can be a useful tool in the prevention of and treatment of symptoms and diseases, but if not used properly, they may harmful and cause new symptoms or produce sub optimal effect.

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In this study prescribing practices in diabetes mellitus patients were evaluated. The drug interactions among the prescriptions analyzed was found to be 20%.The most common drug interaction was found to be Enalapril with Aspirin. Among the drug interactions found, 4 were minor, 6 moderate and 2 major. Some adverse drug reaction was also found but not any serious event. The most common adverse drug reaction was found to be dizziness followed by pruritis and nausea. The maximum cost of therapy for the patients under study was calculated to be Rs.51-150.

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