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INCIDENCE OF POLYPHARMACY INDUCED DRUG INTERACTION IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Keywords:

Polypharmacy,
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Drug interaction represents a major problem in day- to- day practice. The incidence of adverse reactions increases almost exponentially as the number of drugs co prescribed rises, and this is in part due to interaction. Critically ill, chronically ill and elderly patients are particularly at risk of drug interactions due to polypharmacy as well as impaired homeostatic mechanisms. The study was aimed to assess polypharmacy and drug interaction in the prescriptions. The study was carried out by taking 200 prescriptions from different departments of our hospital and assessed the drug interaction through Micromedex and Drugs update. Polypharmacy was assessed using Prescribing indicators in WHO drug use indicators. Polypharmacy was observed in 85% of the prescriptions and drug interaction was observed in 58.5% of the prescriptions.

INTRODUCTION: Drug interactions and side effects are the negative but real consequences of pharmacological therapy. The more medications patients take, the greater the potential for drug-drug interactions.

Critically ill, chronically ill and elderly patients are particularly at risk of drug interactions due to polypharmacy as well as impaired homeostatic mechanisms.

Polypharmacy” carries negative connotations, including increased costs, poorer compliance, and increased risk of side effects and drug interactions.

Objective: The objectives were to study the incidence and pattern of Drug interaction in our hospital and to identify whether it is associated with Polypharmacy.

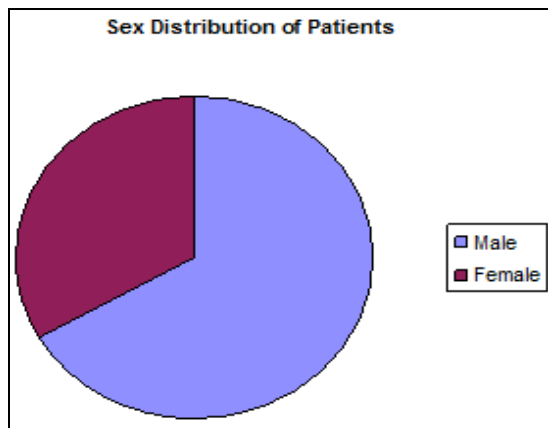
MATERIAL AND METHODS: It is a Prospective Observational study using 200 out patient and in

patient prescriptions from different departments in a tertiary care hospital.

Prescriptions from Surgical ward as well as OBG ward were excluded as the number of drugs prescribed will be increased in case of surgical prophylaxis.

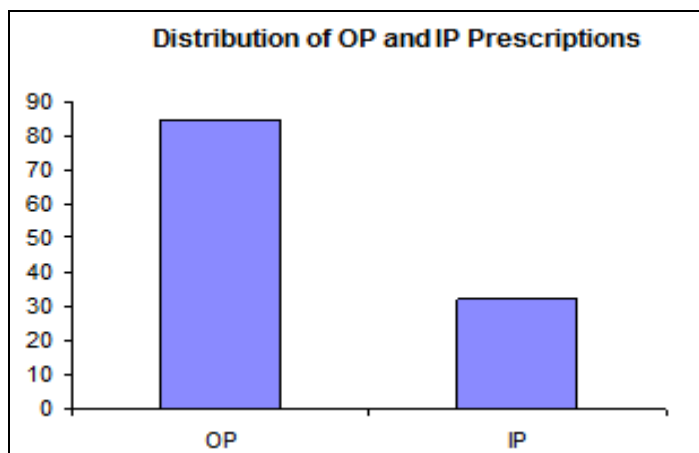
RESULT AND DISCUSSION: Polypharmacy and associated ADRs are well established in older patients since they are more likely to be affected by multiple chronic conditions and multiple uses of drugs. In developing countries like India, there are no stringent regulations about the use of drugs.

- A total of 117 prescriptions (58.5%) were found to have drug interactions in 200 prescriptions. Out of which 78(66.6%) were male and 39(33.3%) were female patients (**graph 1**). It shows that the prevalence of polypharmacy in female is 2-fold compared to male.



GRAPH 1

- Out of 117 drug interactions, 85 (72.6%) were reported from Out Patient department and remaining 32 (27.3%) were from In patient department (graph2).

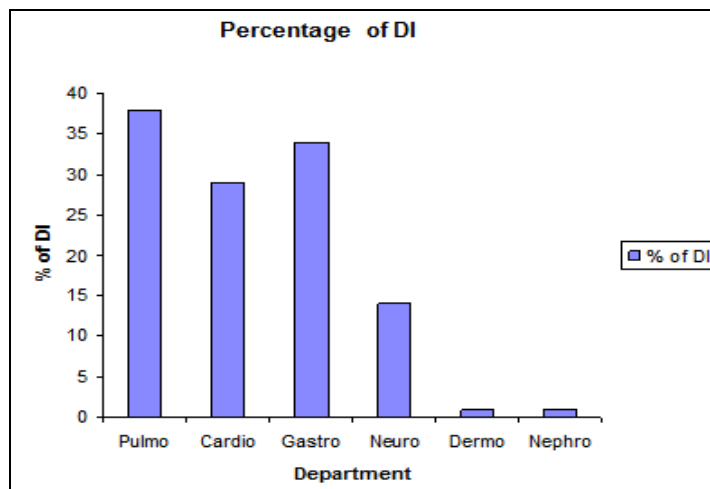


- Age was found to be an important criteria in the fact that the patients in the age group 51-70 years has experienced maximum DIs (61.5%) followed by 23% in the age group 41-50 years- table 1.

TABLE 1:

Sl. No	Age group	No of prescriptions
1	0-10	8
2	10-20	9
3	20-30	10
4	30-40	22
5	40-50	27
6	50-60	39
7	60-70	33
8	70-80	11
9	80-90	5
10	90-100	0

- Out of 117 interactions, 38 were from pulmonary department, 34 from Gastroenterology department 29 from Cardiology department and 14 from Neurology department (graph 3).



- Severity of the drug interactions was observed. Among that 20.1% were minor, 66.2% were moderate and 13.63 % were severe interactions (table 3).

Sl. no	Class of Drug	Name of the Drug
1	Antibiotics	Gentamycin
		Amoxicillin
		Ciprofloxacin
		Levofloxacin
		Ceftriaxone
		Tetracycline
		Cefpodoxime
		Azithromycin
2	NSAIDs	Mefenamic Acid
		Diclofenac
		Paracetamol
3	Corticosteroids	Aspirin
		Prednisolone
		Hydrocortisone
		Dexamethasone
4	Cardiovascular drugs	Metoprolol
		Labetolol
		Isosorbide mononitrate
		Losartan
		Amlodipine
		Nifedipine
		Telmisartan
		Ramipril
Nitroglycerine		
5	Diuretics	Frusemide
		Spironolactone
		Amiloride
		Torseamide
6	Anticonvulsant	Acetazolamide
		Carbamazepine
		Phenytoin

		Clonazepam Gabapentin Alprazolam Olanzapine Pregbaline
7	Antidiabetic	Metformin Glimiperide
8	Anticoagulant	Heparin Clopidogrel
9	Antiasthmatics	Theophylline Etiophylline Ipratropium bromide

Sl. No:	Severity of Drug interaction	% of DI
1	Minor	20.1%
2	Moderate	66.2%
3	Major	13.63%

CONCLUSION: Our study suggests that current practice in our hospital associated with greater polypharmacy and inappropriate medication use. A regular medication chart review by clinical pharmacist to discontinue unnecessary medication will reduce the polypharmacy and inappropriate medication use.

It will reduce the cost of therapy which will ultimately benefit the patient.

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