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Research article

# A PROSPECTIVE OBSERVATIONAL STUDY ON PREVALENCE OF DRUG INTERACTIONS AND THEIR RISK FACTORS IN GASTROENTEROLOGY DEPARTMENT OF TERTIARY CARE HOSPITAL

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**ABSTRACT**

A drug interaction is a change in the action or side effect of a drug caused by concomitant administration of other drug. For example, one drug may alter the Pharmacokinetics (absorption, distribution, metabolism and excretion) of another drug. Occurrence of Drug Interactions increases as the number of drugs administered to a patient increases. Both the use of medications and subsequent adverse drug interactions have increased significantly from 2005-2018. Over a third (36%) of the elderly, they regularly use five or more medications or supplements and 15% are at potential risk of a significant drug-drug interaction with aim and objective to focus on To study the prevalence of drug interactions in gastroenterology department at a tertiary care hospital with the objective to focus on to assess the drug interactions in prescriptions of patients admitted in gastroenterology department. To assess the risk factors of the drug interactions found. To assess the treatments given to gastroenterology patients and comparing the treatment outcome with standard treatment guidelines. Providing proper patient counselling to avoid food-drug interactions. Results and Discussions : This study was conducted in Gastroenterology Dept of New Government General Hospital, Vijayawada. It is a 500 bed tertiary care teaching hospital. Majority of 29 patients were from 31-40 years, 27 patients were from 41-50 years, 21 patients were from 21-30 years and 20 patients were from 51-60 years. Out of 97 patients studied, 77% were male and 23% were female. He number and percentage of population reported with DDIs and population without any DDI in the total sample size of 97 patients admitted in the Gastroenterology department of Government General Hospital, Vijayawada. Among the reported 13 DDIs reported, 4 DDIs were from 21-30 years, 5 DDIs were from 31- 40 years, 2 DDIs were from 41-50 years and 2 DDIs were from 51-60 years. The first step in managing DDIs is to aware the patients about drugs who are taking potentially interacting drugs. It is vital to have periodic monitoring of prescription in order to improve the prescribers, awareness on DDIs and their management in improving the clinical outcomes. Hence clinical pharmacist participation can improve the treatment to hospitalized patients and promote drug safe.

**Key Words:-** Drug interactions , Gastroenterology department , Agonis

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## INTRODUCTION

A drug interaction is a change in the action or side effect of a drug caused by concomitant administration of other drug .For example, one drug may alter the Pharmacokinetics (absorption, distribution, metabolism and excretion) of another drug. (Han HK., 2011). Occurrence of Drug Interactions increases as the number of drugs administered to a patient increases (O'Reilly RA., 1975). Both the use of medications and subsequent adverse drug interactions have increased significantly from 2005-2018 (Netter KJ., 1980). Over a third (36%) of the elderly, they regularly use five or more

medications or supplements and 15% are at potential risk of a significant drug-drug interaction (Testa B, Jenner P., 1981). Among adults older than 55, 4% are taking medication and(or) supplements that put them at risk of a major drug interaction (Hepler CD and Strand LM ., 1990). Potential drug-drug interactions have increased over time and are more common in the low educated elderly even after controlling for age, sex, place of residence and co-morbidity (Krishna DR, Klotz U., 1994). When two drugs are used together, their effects can be additive or synergistic or antagonistic (Sindrup SH, Brosen K ., 1995).There is sometimes a confusion on whether drugs are synergistic or additive, since the individual effects of each drug may vary from patient to patient (Greco W, *et al.,* 1995). A synergistic interaction may be beneficial for patients but may also increase the risk of overdose. Both synergy and antagonism can occur during different phases of the interaction between a drug and an organism (George J, *et al.,* 1995). For example, when synergy occurs at a cellular receptor level this is termed as agonism and the substances involved are termed as agonist (George J, Iet al. 1995). On the other hand, in the case of antagonism, the substances involved are known as inverse agonist (Delaporte E, Renton KW., 1997). The different responses of a receptor to the action of a drug have resulted in a number of classifications, such as "partial agonist", "competitive agonist" etc (ASHP, 1997).

**Aim and Objective :**

To study the prevalence of drug interactions in gastroenterology department at a tertiary care hospital with the objective to focus on to assess the drug interactions in prescriptions of patients admitted in gastroenterology department. To assess the risk factors of the drug interactions found. To assess the treatments given to gastroenterology patients and comparing the treatment outcome with standard treatment guidelines. Providing proper patient counselling to avoid food-drug interactions. Providing patient education.

**Materials and Methods :**

**Study site :**

This study was conducted in Gastroenterology Dept of New Government General Hospital, Vijayawada. It is a 500 bed tertiary care teaching hospital. It consists of various departments of General Medicine, General Surgery, Pediatrics, Pulmonology, Psychiatry, Obstetrics and Gynaecology (OBG), Gastroenterology, Neurology, Ophthalmology, Nephrology, Orthopaedics, ENT, Skin and VD, ART center and Radiology. Approximately 350-400 patients are being treated in Gastroenterology department per month and patients are being usually referred to this hospital by General Physicians. The patients who visit this hospital are usually from in and around the districts of Krishna, Guntur and West Godavari.

**Study design:**

A hospital based Prospective, Observational study on prevalance of drug interactions and their risk factors in Gastroenterology department at a tertiary care hospital.

**Sample Size:**

A total of 97 patients from the in-patient wards of department of Gastroenterology and to monitor the drug interactions in the patients for the prescribed medication.

**Study Duration:**

The study was conducted over a period of 6 months from July 2019 - December 2020.

**Results and Discussions:**

The present Prospective Observational study was done at Gastroenterology department, New Government General Hospital, Vijayawada over a period of 6 months since June, 2019 to December,2019. A total number of 97 cases were collected. Among them 13 Drug-Drug interactions (DDIs) were observe

Figure 1 Represents the age wise distribution in the study population. Majority of 29 patients were from 31-40 years, 27 patients were from 41-50 years, 21 patients were from 21-30 years and 20 patients were from 51-60 years.

Figure 2 Represents the gender wise distribution in the study population. Out of 97 patients studied, 77% were male and 23% were female

Figure 3 Shows the number and percentage of population reported with DDIs and population without any DDI in the total sample size of 97 patients admitted in the Gastroenterology department of Government General Hospital, Vijayawada.

Figure 4: Represents the age wise distribution in the study population of 97. Among the reported 13 DDIs reported, 4 DDIs were from 21-30 years, 5 DDIs were from 31- 40 years, 2 DDIs were from 41-50 years and 2 DDIs were from 51-60 years.

Figure 5: shows the gender wise distribution in the study population. Out of 97 patients studied 13 cases were reported with DDIs, among 13 cases 77% were male and 23% were female.

Figure 6: Represents the DDIs based on WHO-DIPS Causality assessment scale. Out of 13 DDIs, 3 are identified as Doubtful, 9 are identified as Possible, 1 was identified as Probable

Figure 7: Show that among 13 DDIs majority of DDIs are pharmacokinetic (7) and pharmacodynamics (6). Figure 8 : Shows that majority of DDIs found were Mild (9), Moderate (4) and Severe (0)

**Figure 1 Showing Age Wise Distribution:**

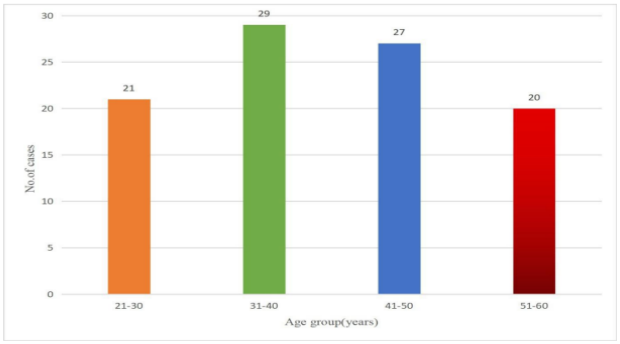



**Figure 2 : Gender Wise Distribution**

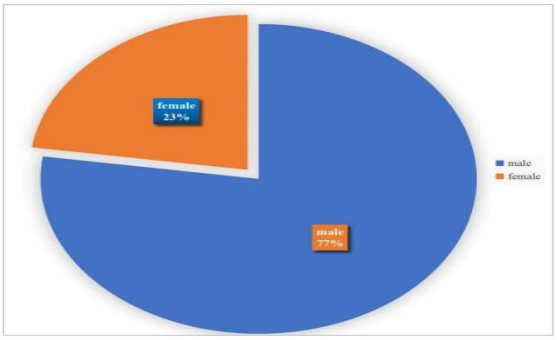



**Figure 3 : Percentage of DDIs in total population**

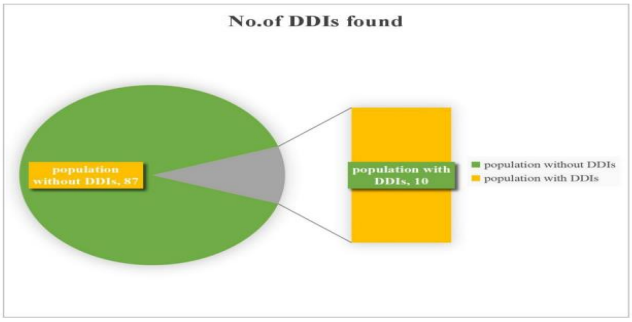



**Figure 4: Age Wise Distribution of DDIs reported in Study Population**

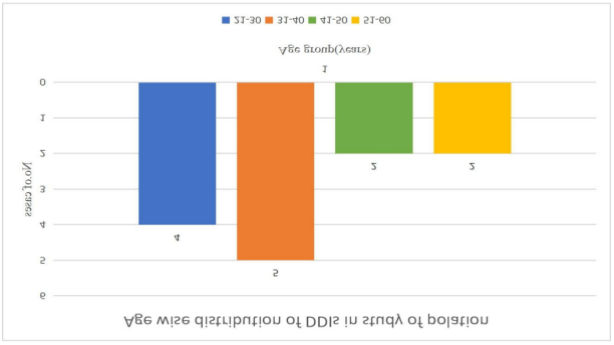


**Figure 5: Gender Wise Distribution of DDIs reported in Study Population**

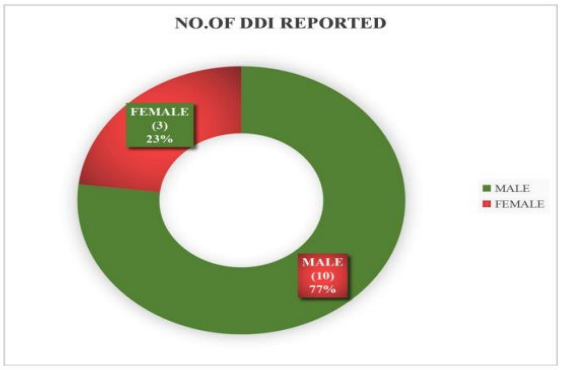



**Figure 6: DDIs based on WHO-DIPS Causality Assessment Scale**

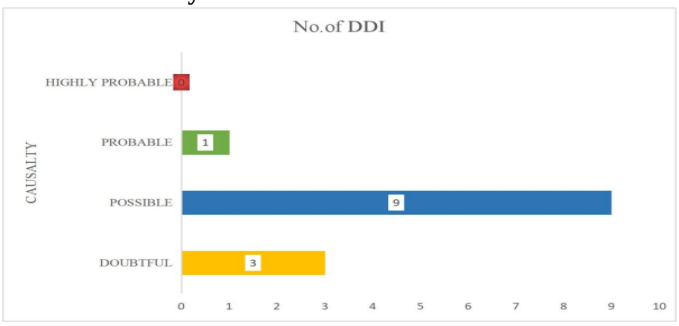



**Figure 7: DDIs based on pharmacokinetic and pharmcodynamic:**

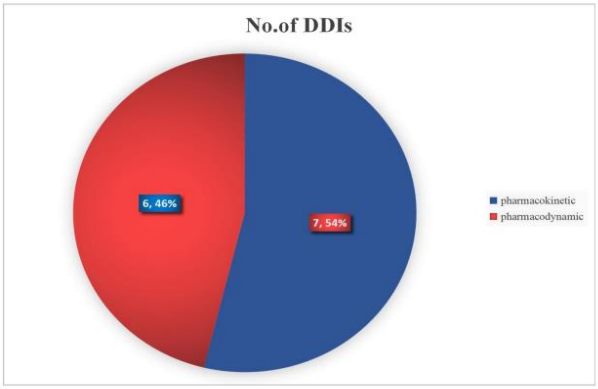
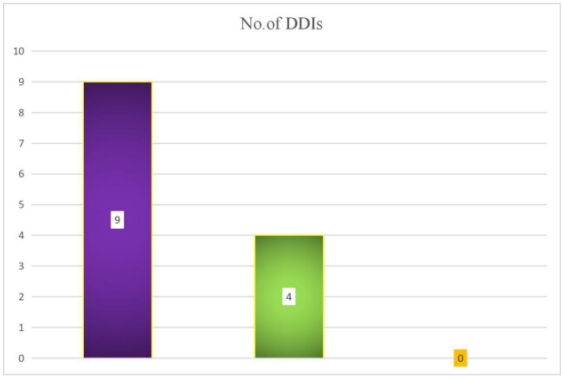



**Figure 8: Showing Based on severity scale**



**DISCUSSIONS:**

This study was conducted in Gastroenterology Dept of New Government General Hospital, Vijayawada. It is a 500 bed tertiary care teaching hospital. Majority of 29 patients were from 31-40 years, 27 patients were from 41-50 years, 21 patients were from 21-30 years and 20 patients were from 51-60 years. Out of 97 patients studied, 77% were male and 23% were female. he number and percentage of population reported with DDIs and population without any DDI in the total sample size of 97 patients admitted in the Gastroenterology department of Government General Hospital, Vijayawada. Among the reported 13 DDIs reported, 4 DDIs were from 21-30 years, 5 DDIs were from 31- 40 years, 2 DDIs were from 41-50 years and 2 DDIs were from 51-60 years. Out of 97 patients studied 13 cases were reported with DDIs, among 13 cases 77% were male and 23% were female. WHO-DIPS Causality assessment scale. Out of 13 DDIs, 3 are identified as Doubtful, 9 are identified as Possible, 1 was identified as Probable. 13 DDIs majority of DDIs are pharmacokinetic (7) and pharmacodynamics (6). majority of DDIs found were Mild (9), Moderate (4) and Severe (0)

**CONCLUSION:**

The first step in managing DDIs is to aware the patients about drugs who are taking potentially interacting drugs .It is vital to have periodic monitoring of prescription in order to improve the prescribers, awareness on DDIs and their management in improving the clinical outcomes. Hence clinical pharmacist

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