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RESEARCH ARTICLE

A Prospective Study of Drug Utilization and Evaluation of Gastro Intestinal Agents

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ABSTRACT:

OBJECTIVE: A study was conducted to evaluate drug utilization of gastrointestinal agents in pediatric and geriatric patients. **METHODS:** Randomly selected 150 patients of gastrointestinal diseases with 92 male and 58 female of age from 15-58 underwent drug utilization evaluation of gastrointestinal agents. The frequencies of gastrointestinal agents were calculated and compared WHO indicators of DUS (drug utilization study) guidelines. **RESULTS:** Results include patients on long term gastrointestinal drug therapy on geriatric patient, paediatric patient. It include 92 male and 58 female patients in which 38.66% of female patient was and 61.335 of male patient suffered from gastrointestinal diseases. Out of 150 patients 21.33% of patients was treated with pantoprazole, 12% of patients was treated with esomeprazole, 28.66% of patients was treated with omeprazole, 10.66% of patients was treated with rabeprazole, 27.33% of patients was treated with ranitidine. Oral route of administration was more than parenteral administration. Gastritis is occurred more than inflammatory bowel disease, peptic ulcer disease and gastroesophageal reflux disease

KEYWORDS: Drug efficacy, GIT agents, Proton pump inhibitor, Gastritis

INTRODUCTION:

Drugs used for their effects on the gastrointestinal system, as to control gastric acidity, regulate gastrointestinal motility and water flow, and improve digestion. A group of pharmacologic activities, effects on living systems and the environment, and modes of drugs and chemicals. some of the drugs are proton pump inhibitor, antihistamines, antibiotic, antimuscarinic, antispasmodic agents.

Pharmacological activities at the molecular level of drugs and other exogenous compounds that are used to treat diseases. A category of chemical actions and uses that result in the prevention, treatment, cure or diagnosis of disease.

ANTACID:

The Agents that are used to reduce acid secretion in the stomach.

ANTIDIARRHEAL:

A agents that are used to reduce intestinal motility. Hygroscopic agents, bile acid resin, are some of the antidiarrheal agents.

LAXATIVE:

Agents that produce a soft formed stool, and relax and loosen the bowels, typically used over a protracted period, to relieve Constipation.

MATERIALS AND METHODS:

The population included of 92 male and 58 female patients in which 38.66% of female patient was found to suffer from gastrointestinal diseases and 61.335% of male patient suffered from gastrointestinal diseases. 19.33% of patients suffered from osteoarthritis, 28% of diabetes mellitus, 22% of hypertension, 4% of COPD,

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26.66% of coronary heart disease. The above patient are treated with Pantoprazole, Esomeprazole, Omeprazole, Rabeprazole and Ranitidine.

The 21.33% of patients was administered to Pantoprazole, 12% of patients was administered esomeprazole, 28.66% of patients was administered to Omeprazole, 10.66% of patients was administered Rabeprazole to, 27.33% of patients was administered to Ranitidine.

The above patients also administered 62% administered a antibiotic, 54% of patients was administered with oral hyperglycemic, 24.66% of patients was administered with analgesic, 70% of patients was administered with antihypertensive, 64% of patient was administered with vitamin. The out of 150 patients the drug interaction was found in patients with 64%, 34.66%, 1.33%.

RESULT AND DISCUSSION

The results are included Patients on long term gastrointestinal drug therapy. lactating women 92 male and 58 female patients in which 38.66% of female patient was found to suffer from gastrointestinal diseases and 61.335 of male patient suffered from gastrointestinal diseases.21.33% of pantoprazole was administered to 32 patients,12% of esomeprazole to 18 patients,28.66% of omeprazole to 42 patients,10.66% of rabeprazole to 16 patients,27.33% of ranitidine to 41 patientsoral route of administration was given more than parenteral route of administration. gastritis was common than compared to inflammatory bowel disease, peptic ulcer disease and gastroesophageal reflux disease. Statistical method was used as descriptive state of statistical method.

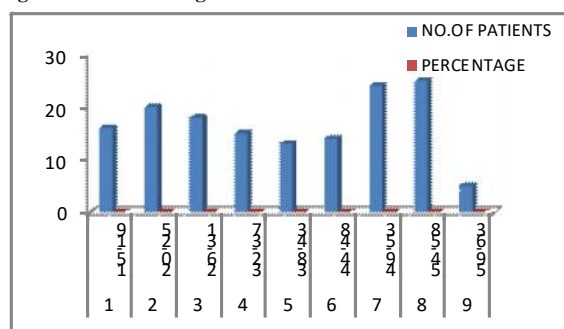
AGE DISTRIBUTION

The number of patients are 150 in which the age is from 15-63 years. Geriatric patient has more gastrointestinal diseases than paediatric patient. Gastroenteritis is in elderly people is acquired from contaminated objects, poor hygiene contaminated environment, infected pets due to changes in immune response, gastrointestinal physiology use of immunosuppressive or acid suppressive medications. Bacterial pathogens is aetiologic cause of gastrointestinal diseases in which norovirus is associated. Pathophysiological changes that occur during aging lead to gastritis. Elderly individuals have oropharyngeal muscle dysmotility, gastric motility, bowel motility, emptying, delayed motility are the reason for gastrointestinal disease in these patients. The Table 1 and Figure 1 was represented as age distribution of selected patients.

Table.1: Shows the Age Distribution of Patients

S.NO	AGE GROUP	NO.OF PATIENTS	PERCENTAGE
1.	15-19	16	10.66%
2.	20-25	20	13.33%
3.	26-31	18	12%
4.	32-37	15	10%
5.	38-43	13	8.66%
6.	44-48	14	9.3%
7.	49-53	24	16%
8.	54-58	25	16.66%
9.	59-63	5	3.3%

Figure.1: Shows the Age Distribution of Patients



Absorption:

Decreased gastric secretion (acid, pepsin) leading to gastric pH and impairment of the mucous bicarbonate barrier lead to gastritis. Theses causes gastrointestinal dysfunction in elderly. Reductions in esophageal peristalsis and lower esophageal sphincter are common. The aging process reduce GI motility and GI blood flow. Leading to reduced absorption.

Distribution:

Aging process has an effect in drug distribution in the body. Muscle mass declines therefore drugs that are fat soluble will have greater volume of distribution but for drugs in muscle tissue the volume of distribution is reduced.

Metabolism:

The aging process affect metabolism of drug. Hepatic blood flow is reduced in elderly adults which affect metabolism of drug as drug is introduced to liver at much lower rate. Liver mass and intrinsic metabolic activity (includes the CYP450 enzyme)is reduced during aging process. Phase I reaction are affected more than phase II reaction. With a reduction of blood flow to liver and reduced metabolic activity the metabolic process is reduced.

Elimination:

Many drugs are completely or partially excreted from kidneys. Reduction in glomerular filtration rate is a consequence of aging.

GENDER DISTRIBUTION:

The number of patient is 150 in which 92 are male and 58 are females. Males have 61.33% of gastrointestinal diseases and females have 38.66% of gastrointestinal diseases.

Males has more gastrointestinal disease than females due to tobacco intake, alcohol, obesity. *H. pylori* bacteria causes gastrointestinal disease in males. The Table 2 and Figure 2 was represented as age distribution of selected patients.

Table.2: Shows the Gender Distribution of Patients

S.NO.	GENDER GROUP	MALE	FEMALE
1.	NO. OF PATIENTS	92	58
2.	PERCENTAGE	61.33%	38.66%

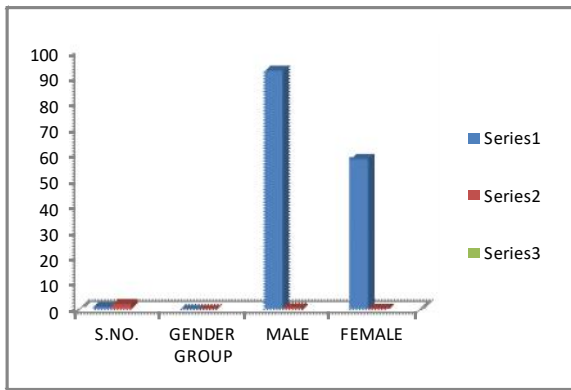


Figure.2: Shows the Gender Distribution of Patients

ROUTE OF ADMINISTRATION:

No. of patients is 150 in which 104 patients are given orally which is more than 46 patients are given parenterally. The oral route of administration is safe and less expensive, take place with whole length of gastrointestinal .Drugs are absorbed in small intestine .the drug passes through gastrointestinal wall and them to liver before transported via the blood stream to its site. The intestinal wall and liver chemically metabolize many drugs decreasing the amount of drug reaching the blood stream. The Table 3 and Figure 3 was represented as age distribution of selected patients.

Table.3: Shows the effect of route of administration of Patients

S.NO	ROUTE OF ADMINISTRATION	NO. OF PATIENTS	PERCENT
1.	ORAL	104	69.33%
2.	PARENTERAL	46	30.66%

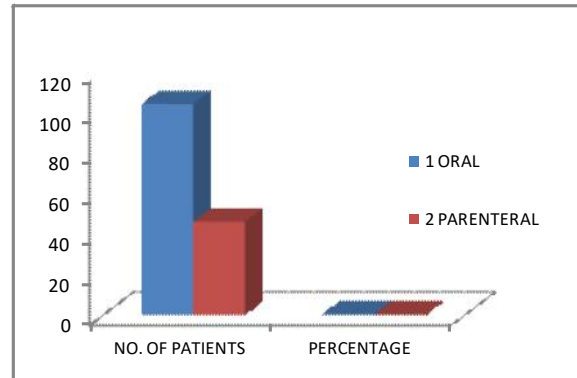


Figure.3: Shows the effect of route of administration distribution of Patients

DIAGNOSIS BASED SEGREGATION:

The number of patients is 150 in which gastritis has more patients with 30.66% ,39 patients of gastroesophageal reflux disease with 26% ,peptic ulcer disease has 34 patients with 22.66% ,inflammatory bowel disease has 31 patients of 20.66%.Helicobacter pylori bacteria, norovirus cause gastritis, poor hygiene, contaminated objects are some of the reason of gastritis, using cocaine In autoimmune gastritis, the immune system attacks cells in intestinal lining.So H.pylori causes gastritis commonly than compared to inflammatory bowel disease, peptic ulcer disease, and gastroesophageal reflux disease. The Table 4 and Figure 4 was represented as age distribution of selected patients

Table .4:Shows the diagnosis classification of selected patients

S. No.	Diagnosis	No. of patients	Percentage
1.	Gastritis	46	30.66%
2.	Inflammatory bowel disease	31	20.66%
3.	Peptic ulcer	34	22.66%
4.	Gastroesophageal reflux disease	39	26.00%

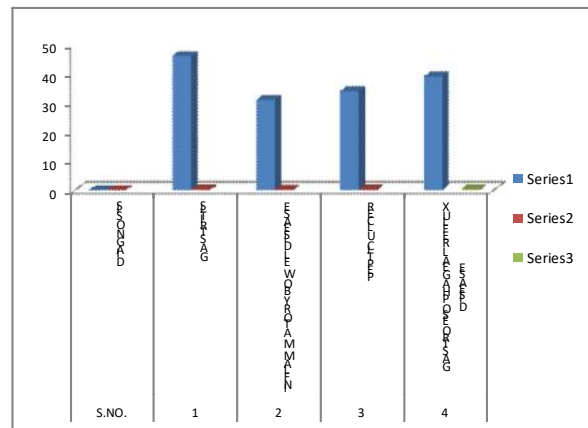


Figure.4: Shows the diagnosis classification of selected patients

GASTROINTESTINAL AGENTS:

The number of patients is 150 in which omeprazole is given more than pantoprazole, esomeprazole, rabeprazole, ranitidine. Omeprazole considered safe but there are some association of cancer, gastric atrophy. Long term therapy are mainly associated with fundic gland polyps and between helicobacter pylori and gastric atrophic changes. Pantoprazole has lower affinity than omeprazole and rabeprazole for hepatic cytochrome P450 and shows no relevant pharmacokinetic or pharmacodynamics interactions at therapeutic doses with substrates for isoenzyme system. In conclusion pantoprazole is superior to ranitidine in treatment of peptic ulcer disease. It has shown efficacy when combined with antibacterial agents in *H.pylori* eradication and has minimal risk of drug interaction. Pantoprazole results in more pain relief than H2 antagonist with more efficacy in gastroesophageal reflux disease.

Table .5: Shows the efficacy of selected Gastrointestinal agents

S.no.	Drugs	Overall	Percentage
1.	Pantoprazole	32	21.33%
2.	Esomeprazole	18	12%
3.	Omeprazole	42	28.66%
4.	Rabeprazole	16	10.66%
5.	Ranitidine	41	27.33%

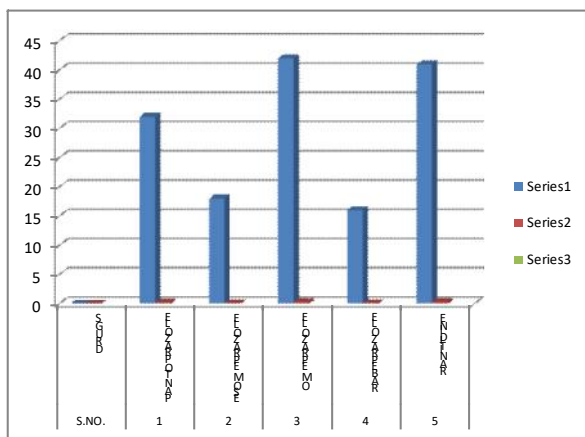


Figure:5 Shows the efficacy of selected Gastrointestinal agents

DISCUSSION:

According to referred article of the proton pump inhibitor omeprazole on the gastrointestinal bacterial microbota was reported as omeprazole administration led to decrease in gastric helicobacter spp., while a number of investigation suggest that PPIs also lead to a decrease in the abundance of gastric *H.pylori*.

According to article proton pump inhibitor usage and the risk of myocardial infarction in the population PPIs is associated with increased risk of myocardial infarction and H2 blockers show no such association.

The population is about 150 patients with age of 15 to 58 in which 92 are male and 58 are female. Males had increased percentage of gastrointestinal diseases than females. Oral route of administration was administered more than parenteral administration. Gastritis was diagnosed more than other gastrointestinal diseases. Omeprazole was administered more than other gastrointestinal agents drug interaction is mild.

CONCLUSION:

These results demonstrate that 150 patients of age 15 to 58 years in which geriatric had more gastrointestinal diseases than paediatric patients due to gastrointestinal physiology ,use of immunosuppressive or acid suppressive medications Bacterial pathogens is a etiologic cause of gastrointestinal diseases in which norovirus is associated. Pathophysiological changes that occur during aging lead to gastritis. Elderly individuals have oropharyngeal muscle dysmotility, gastric motility, bowel motility, emptying, delayed motility are the reason for gastrointestinal disease in these patients.

Males had more gastrointestinal disease than females due to intake of cocaine ,tobacco intake, obesity. *H.pylori* bacteria causes gastrointestinal disease in males. omeprazole was administered more than compared to ranitidine, rabeprazole, pantoprazole Omeprazole considered safe but there are some association of cancer, gastric atrophy. Long term therapy are mainly associated with fundic gland polyps and between helicobacter pylori and gastric atrophic changes. Pantoprazole has lower affinity than omeprazole and rabeprazole for hepatic cytochrome P450 and shows no relevant pharmacokinetic or pharmacodynamics interactions at therapeutic doses with substrates for isoenzyme system. So pantoprazole is superior to ranitidine in treatment of peptic ulcer disease.it has shown efficacy when combined with antibacterial agents in *H.pylori* eradication and has minimal risk of drug interaction. Pantoprazole results in more pain relief than H2 antagonist with more efficacy in gastroesophageal reflux disease.

Oral route of administration was given more than compared to parenteral route of administration due to safe and less expensive ,take place with whole length of gastrointestinal .Drugs are absorbed in small intestine .the drug passes through gastrointestinal wall and them to liver before transported via the blood stream to its site. The intestinal wall and liver chemically metabolize many drugs decreasing the amount of drug reaching the blood stream.

Gastritis was more in diagnosis than compared to other diseases due to Helicobacter pylori bacteria, norovirus cause gastritis, poor hygiene, contaminated objects are

some of the reason of gastritis, using cocaine .In autoimmune gastritis, the immune system attacks cells in intestinal lining. So *H.pylori* causes gastritis commonly than compared to inflammatory bowel disease, peptic ulcer disease, and gastroesophageal reflux disease.

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