



Research Article

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Prescribing pattern of acid suppressant drugs in current clinical practice

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Abstract

The most prevailing disease in most of the countries is gastric related problems for which majority of the population prefer acid suppressant agents. The commonest indication for which physicians prescribed acid suppressant drugs are gastro-esophageal reflux disease followed by Dyspepsia followed by peptic ulcer disease followed by with Non-steroidal anti-inflammatory drugs and with other drugs. A prospective observational study was conducted to identify and evaluate the appropriateness of acid suppressant drugs in hospitalized patients and also to identify the reason for its use. Case sheets of patients who were prescribed with acid suppressant drugs were included in the study. In the population of 400 patients male (55.75%) were found more than female (44.25%) patients. Most of these drugs were prescribed in the age group of 51-60 years (28%). The Majority of patients on acid suppressant drug therapy suffered from fever (21%). The majority of patients were prescribed with H₂ receptor antagonist (49.25%) followed by proton pump inhibitors alone (21.75%) as well as a combination of both (20.25%). Most of the patients received only one (72.75%) than two ASDs (25.55%) in a dosage forms such as injection (52.5%) and tablet (22.75%) respectively. This study found overuse and underuse of acid suppressant drugs in study hospital. The study highlighted the need for a local protocol for rational use of these agents in current clinical practice.

Keywords: Acid suppressant drugs, H₂RAs, Prescribing pattern, PPIs.

INTRODUCTION

The acid-peptic diseases are those disorders in which gastric acid and pepsin are necessary, but not sufficient due to pathogenic factors. The treatment and prevention of these acid-related disorders are accomplished by acid suppressant drugs which neutralize gastric acid and are used to treat ulcers.^[1] Acid Suppressant drugs are those drugs which neutralize gastric acid, and are used to treat ulcer pain and heal the ulcer. The success of acid-suppressing agents in a variety of conditions is critically dependent upon their ability to keep intragastric pH above a certain target, generally pH 3 to 5; this target varies to some extent with the disease being treated.^[2]

Drugs used to inhibit gastric acidity include proton pump inhibitors (PPIs), histamine H₂ receptor antagonists (H₂ blockers), and other antacid medications including bicarbonate containing preparations and preparations containing aluminum and magnesium along with agents with specific effects on prostaglandin synthesis.^[3] H₂RAs are limited in their ability to inhibit postprandial gastric acid secretion and are ineffective in controlling reflux symptoms and healing esophagitis. In contrast to H₂RAs, proton pump inhibitors block the final step of acid secretion, resulting in a profound and long-lasting acid suppression regardless of the stimulus.^[4]

Studies have indicated that 1.26% of the UK general practice patients are on long term acid suppression therapy and 0.45% are on long term PPI's. Most acid suppressing drugs (ASDs) are known to have the potential for interaction with other drugs through interference with the metabolism in the liver.^[5]

Inappropriate use of acid suppression therapy has been consistently demonstrated in the inpatient general medical population. Many of the reviews discussed here identify SUP as a common reason for inappropriate therapy. Current stress ulcer prophylaxis guidelines recommend AST with an H₂RAs an antacid or sucralfate for patients who are at high risk of developing a stress ulcer (PPIs are not recommended in these guidelines due to lack of efficacy and safety data at the time of publication).^[6]

MATERIALS AND METHODS

A prospective observational study was carried out for a period of 6 months from November 2014 to April 2015 in a tertiary care teaching hospital at Navodaya Medical College Hospital and Research Center, Raichur. A total of 400 patients were included in the study those admitted to in-patients of general medicine department and were prescribed with acid suppressant drugs. The patients admitted to other wards, ICU, Casualty, Ventilator and pregnant women were excluded from the study. Data were collected from the prescription of patients who were prescribed with acid suppressant drugs and the collected prescriptions were analyzed for the most commonly used acid suppressant drugs and its category, indication, rationality of the prescription (number of ASDs prescribed, appropriateness of dose, dosage form etc. Descriptive statistic was used to summarize the demographic characteristics, acid suppressant drugs usage data. Frequencies and proportions/percentages were used to describe categorical variables.

RESULTS

Out of total 400 patients prescribed with acid suppressant drugs, 223(55.75%) were male and 177(44.25%) were female. The age group of 51-60 was predominant for which these agents were prescribed; (27.81%). The length of stay of patients in the hospital was mostly four (24.25%) to five (29.75%) days while some were admitted for more than seven (22%) days.

The most common reason for admission of patient was fever (21%) and cough (18%) for which these ASDs were prescribed while other commonest reasons like heartburn (1.5%), indigestion (0.5%) and burning sensations (2.25%) for which these agents are mainly indicated were found very few.

The route of administration of the drug in 127 patients was parenteral (31.75%) and in 113 patients was oral (28.25%) while in 160 patients, there was both oral and parenteral (40%) administration of drugs. (Table 1).

Of the total 400 patients, two hundred nineteen were prescribed with ranitidine (54.75%) alone while eighty five were prescribed with pantoprazole (21.25%) and followed by breakups of other ASDs (table 2).

Table 1: Route of Administration

S. No	Route of Administration	No. of Patients	Percentage (%)
1	Parenteral	127	31.75
2	Oral	113	28.25
3	Oral+Parenteral	160	40

H₂-receptor antagonist was the predominant category of drug among all ASDs which was prescribed in 197 patients (49.25%) followed by proton pump inhibitors in 87 cases (21.75%) and by other ASDs (figure 1).

Respiratory disease (16.5%) was main clinical condition for which majority of patients got admitted and undergone ASDs therapy followed by hypertension and fever (figure 2).

Antibiotics (28.25%), NSAIDs (13.75%) and bronchodilators (11.25%) were the concurrent drugs used along with ASDs therapy (figure 3).

Table 2: Breakups of ASDs

S. No	Breakups of ASDs	No. of Patients	Percentage (%)
1	Ranitidine	219	54.75
2	Pantoprazole	85	21.25
3	Rabeprazole	2	0.5
4	Omeprazole	2	0.5
5	Ranitidine+Pantoprazole	72	18
6	Ranitidine+Rabeprazole	3	0.75
7	Pantoprazole+Rabeprazole	3	0.75
8	Pantoprazole+Al.Hydroxide & Mg.Hydroxide	6	1.5
9	Ranitidine+ Al.Hydroxide & Mg.Hydroxide	3	0.75
10	Ranitidine+Pantoprazole+ Rabeprazole	4	1
11	Omeprazole+Pantoprazole +Rabeprazole	1	0.25

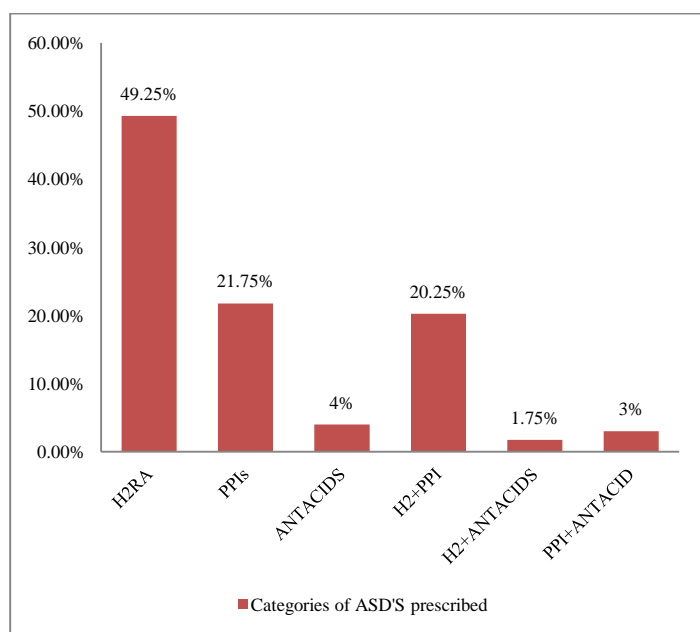


Figure 1: categories of ASDs

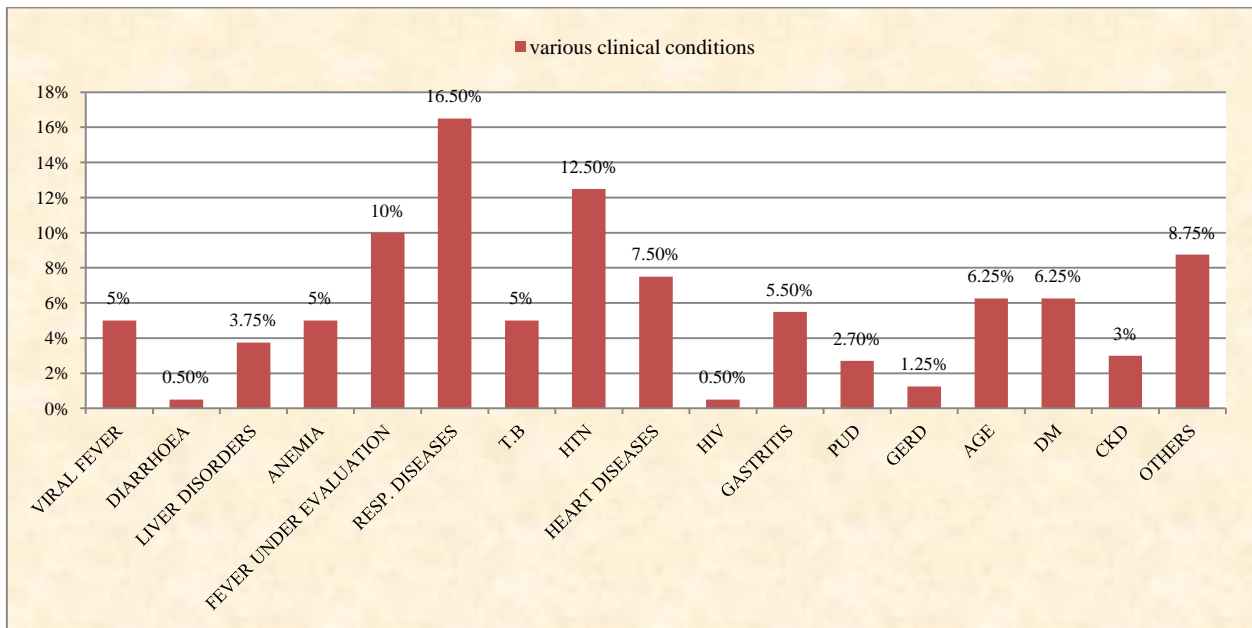


Figure 2: Various clinical conditions under therapy

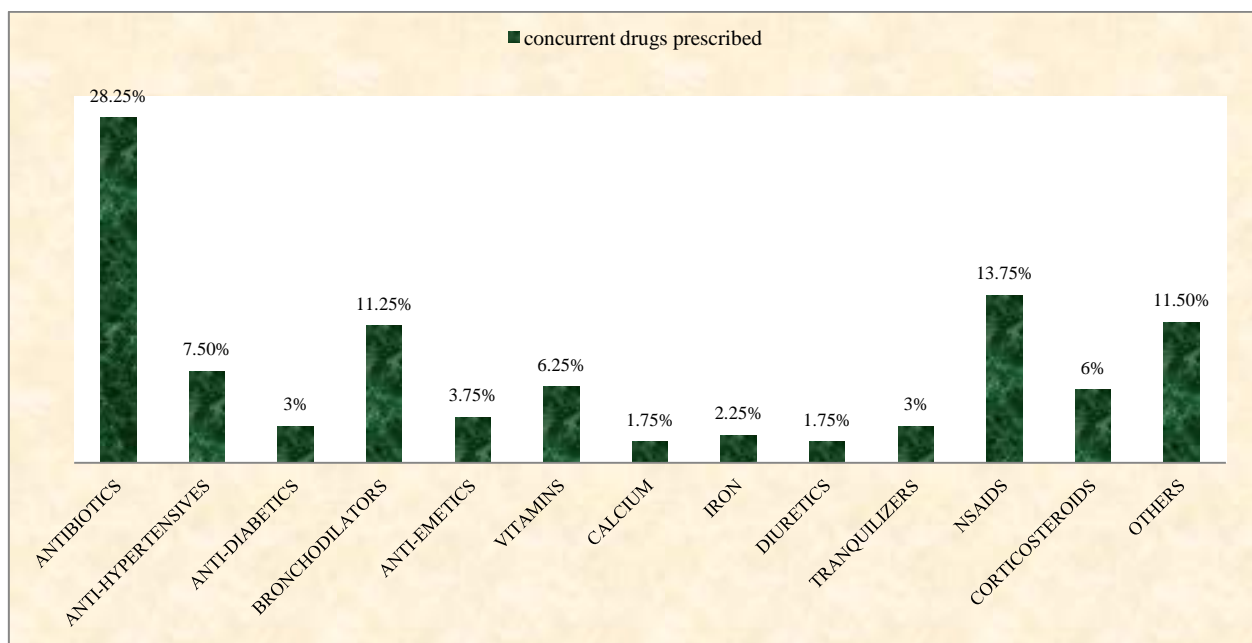


Figure 3: Concurrent drugs used

DISCUSSION

In order to understand the rational use of ASDs a prospective observational study was carried out by reviewing the prescription of 400 patients who were prescribed with acid suppressant drugs from Nov 2014 to April 2015.

The gender distribution of study population showed that among 400 patients, 223 (55.75%) were male and 177 (44.25%) were female. This data showed that commonly male population are more prone to conditions, for which ASDs are prescribed. Similar results were reported by Hurenkamp GJB *et al* [7]. 28% belong to age group of 51-60 years followed by 21% from the age group of 31-40 years. It shows that ASDs are mainly used in geriatric patients, Similar results were reported by Machado A *et al* [8].

Our study indicates that majority of patients on ASDs therapy were suffered from fever 84(21%) followed by a cough 72(18%) and generalised body ache 33(8.25%).

In 40% of the prescription, ASDs were given by both oral & parenteral route, following 127(31.75%) for parenteral route alone and 113(28.25%) were given by oral route alone as shown in Table 1.

The majority of patients were prescribed with H₂ receptor antagonist (49.25%) followed by PPIs alone (21.75%) as well as a combination of both (20.25%) as shown in figure 1. This result shows that H₂ receptor antagonist was prescribed in the majority of a population for immediate relief of gastric related problems while PPIs were included in prescription along with H₂ receptor antagonist for maintenance therapy.

Among the patients included in this study, 113 (28.25%) were concomitantly receiving one or more of the following groups of drugs that reflected a co-morbidity and may cause drug interactions with ASDs: Antibiotics 113 (28.25%) followed by NSAIDs 55 (13.75%) which is followed by bronchodilators 45 (11.5%).

Table 2 summarising the breakups of ASDs prescribed. Ranitidine (54.75%) was the most prescribed drug followed by pantoprazole (21.25%) and combination of ranitidine and pantoprazole (18%). Respiratory disorders (16.5%) were the most predominant diseases found in patients followed by HTN (12.5%) and fever under evaluation (10%) for which ASDs were prescribed as shown in figure 3. This data suggests mostly ASDs were prescribed to the patients to prevent gastric irritation caused by antibiotics and other drugs used in the treatment of these disorders rather than used for proper indications of the use of these agents. ASDs were prescribed in different dosage forms out of which majority of the drugs were given by injections 210 (52.5%) followed by tablet and injections 54 (13.5%).

The main limitation of the study was limited numbers of patients and also study was limited to only general medicine department, as the study can be also extended to others wards of the hospital. The reflected results of our study cannot be generalized as it was carried out in a single hospital setting. Hence, a multi-centric study should be carried out with large numbers of patients to generate the pattern of prescribing of these agents in general populations.

CONCLUSION

The study was aimed to detect the prescribing patterns of ASDs in current clinical practice. The study found the irrational use of ASDs in study site. The present study point to the establishment of proper guidelines to the prescribing of these acid suppressant agents at each hospital and to share the data with other hospitals/ healthcare settings. The role of a clinical pharmacist in this situation appears strong intervention; and, the clinical pharmacist, initially, could confine to the identification of any deficiencies in the pattern of prescribing and help to solve them.

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