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Expert Opinion on the Prescription Practice of Proton Pump Inhibitors in Indian Settings for Managing Gastro-Esophageal Reflux Diseases

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Authors' contributions

This work was carried out in collaboration between both authors. Both the authors contributed equally in managing literature search, designing the study, performed the statistical analysis, wrote the protocol, and the first draft of the manuscript. Both authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

Background: Although proton pump inhibitors (PPIs) were widely prescribed, the perspectives of clinicians regarding PPIs in the management of gastro-esophageal reflux diseases (GERD) was lacking. So, this study intended to gather clinicians' opinion regarding the prescription practice of PPIs and other GERD-related experiences for managing gastroesophageal reflux disease in routine Indian settings.
Methods: This cross-sectional study gathered expert opinion of specialists using a 21-item, multiple-response questionnaire. The survey included questions pertaining to current prescription trends, clinical observations, and preferences related to the use of PPIs, and GERD-related experiences. Descriptive statistics were carried out for data analysis.

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Results: The survey involved 205 clinicians, with the majority (49.76%) indicating the use of American College of Gastroenterology (ACG) guidelines for managing GERD in routine practice. Approximately 68% of the clinicians emphasized the symptoms of heartburn and/or regurgitation as the most important for diagnosing GERD. According to 53% of the clinicians, the most common symptom reported by GERD patients was heartburn. Proton pump inhibitors (PPIs) were favored by the majority of clinicians (87.32%) as the first-line treatment for GERD. Among PPIs, approximately 90% preferred pantoprazole due to its faster onset of action. Additionally, nearly 91% reported using domperidone as the preferred gastroprokinetic in combination with PPI therapy. About 57% of clinicians preferred pellets/capsules for PPI administration. Majority (85.37%) preferred pantoprazole as adjuvant therapy and most of them (98.54) reported no key side effects with PPI use.

Conclusion: The findings underscored the clinical utility of ACG guidelines for the effective management of GERD. PPIs were favored by the majority of clinicians as the first-line treatment for GERD, with pantoprazole emerging as the preferred choice due to its faster onset of action.

Keywords: Proton pump inhibitors; gastro-esophageal reflux disease; heartburn; pantoprazole; domperidone.

1. INTRODUCTION

The prevalence of gastroesophageal reflux disease (GERD), defined as individuals experiencing symptoms at least once a week, varies significantly by race and geography. In 2017, the age-standardized prevalence of GERD was 8819 cases per 100,000 populations, and the disease accounted for an estimated 0.7% of all years lived with disability worldwide [1]. In Western societies, GERD was a common gastrointestinal condition affecting approximately 20% of adults. In the United States, the incidence ranges from 18.1% to 27.8%, with a slightly higher prevalence among men. According to research, the prevalence of GERD ranges from 18.1% to 27.8% in North America, 8.8% to 25.9% in Europe, and 2.5% to 7.8% in East Asia [2]. A recent study in Northern India found a GERD prevalence of 16.2% among personnel at a prominent hospital, but epidemiological data on GERD prevalence in the general population of Southern India are limited [3].

Among pharmacological interventions, proton pump inhibitors (PPI) were often recommended as first-line therapy due to their potency and proven efficacy in controlling acid reflux. They provide rapid symptom relief and were typically well-tolerated by patients. PPIs were also indicated for the management of erosive esophagitis, a common complication of GERD [4,5]. They act by irreversibly inhibiting H+/K+-activated adenosine triphosphatase (proton pump) in gastric parietal cells, reducing intragastric acid secretion and neutralizing acid in the stomach and esophagus to prevent heartburn. A systematic review evaluating global trends and practices revealed that approximately 25% of the adult population was prescribed a PPI. PPI use was observed across various age groups, with 63% of users under the age of 65 and 37% aged 65 years or older [6].

Pantoprazole, rabeprazole, omeprazole, lansoprazole, esomeprazole, and dexlansoprazole were the commonly prescribed PPIs [4]. In addition to PPIs, other pharmaceutical interventions utilized in the management of GERD include histamine-2 (H2) receptor antagonists (e.g., cimetidine, famotidine), which inhibit stomach acid production, and prokinetics (e.g., domperidone, metoclopramide), which enhance gastric emptying to alleviate acid reflux symptoms [7]. However, the perspectives of clinicians regarding PPIs in the management of GERD was lacking. So, the present survey-based study aimed to gather clinicians' opinions regarding the prescription practices of PPIs for managing GERD and other related experiences in routine Indian settings.

2. MATERIALS AND METHODS

We carried out a cross sectional, questionnaire based survey among physicians in treating GERD in the major Indian cities from June 2023 to December 2023.

2.1 Questionnaire

The questionnaire booklet titled RAPID (Management of GERD with Pantoprazole-Domperidone therapy) study was sent to the physicians who were interested to participate in this study. The RAPID study questionnaire

included 21 questions pertaining to current prescription trends, clinical observations, preferences related to the use of PPIs, and experiences with GERD in routine settings.

2.2 Participants

An invitation was sent to leading doctors in managing GERD in the month of March 2023 for participation in this Indian survey. About 205 physicians from major cities of all Indian states representing the geographical distribution shared their willingness to participate and provide necessary data. Clinicians had the option to skip any questions they did not want to answer. They were instructed to complete the survey individually, without consulting their coworkers.

2.3 Statistical Methods

The data were analyzed using descriptive statistics. Categorical variables were expressed as percentages to enable a clear understanding of their distribution. Each variable's distribution was represented by its frequency of occurrence and associated percentage. To display the distribution of the categorical variables, graphs were constructed using Microsoft Excel 2013 (version 16.0.13901.20400).

3. RESULTS

The cross-sectional survey involved 205 experts specialized in managing GERD. Approximately 50% reported using the American College of Gastroenterology (ACG) guidelines for managing the disease in routine settings. Around 48% of the respondents reported that nearly 25-50% undergo GERD treatment in routine practice. Majority of the clinicians (68%) stated symptoms of heartburn and/or regurgitation as the most important factor to be considered for the diagnosis of GERD. According to 54% of the respondents, heartburn was the most common symptom that GERD patients complain about. Most of the survey participants (87%) preferred using PPIs as the first-line treatment for managing gastritis (Fig. 1) and majority (95%) reported pantoprazole as the preferred PPI in routine practice (Fig. 2).

According to 91% of the clinicians, domperidone was the most commonly preferred gastroprokinetic to be used in combination with PPI for GERD management (Table 1). Approximately 53% preferred using liquid antacids for the management of hyperacidity, while 47% reported not preferring their usage. About 45% of the experts reported faster onset of action as the key advantage of using pantoprazole in routine clinical practice (Table 2). Upon evaluating on a scale of 1 to 5, approximately 45% of the clinicians indicated a likelihood of prescribing pantoprazole 20 mg for children and around 48% reported a likelihood of prescribing pantoprazole 80 mg for adults.

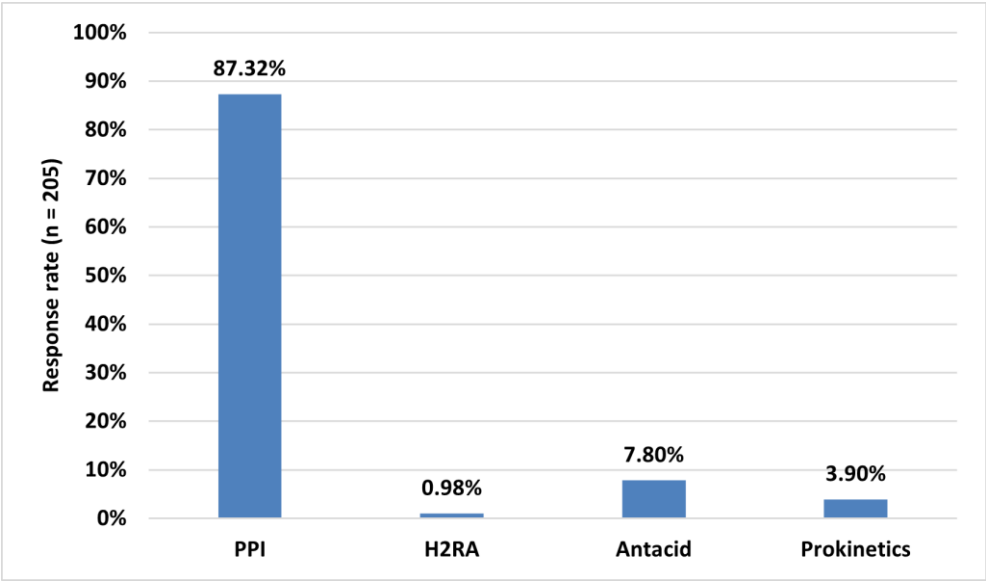

Fig. 1. Distribution of response to preferred first-line treatment for managing gastritis

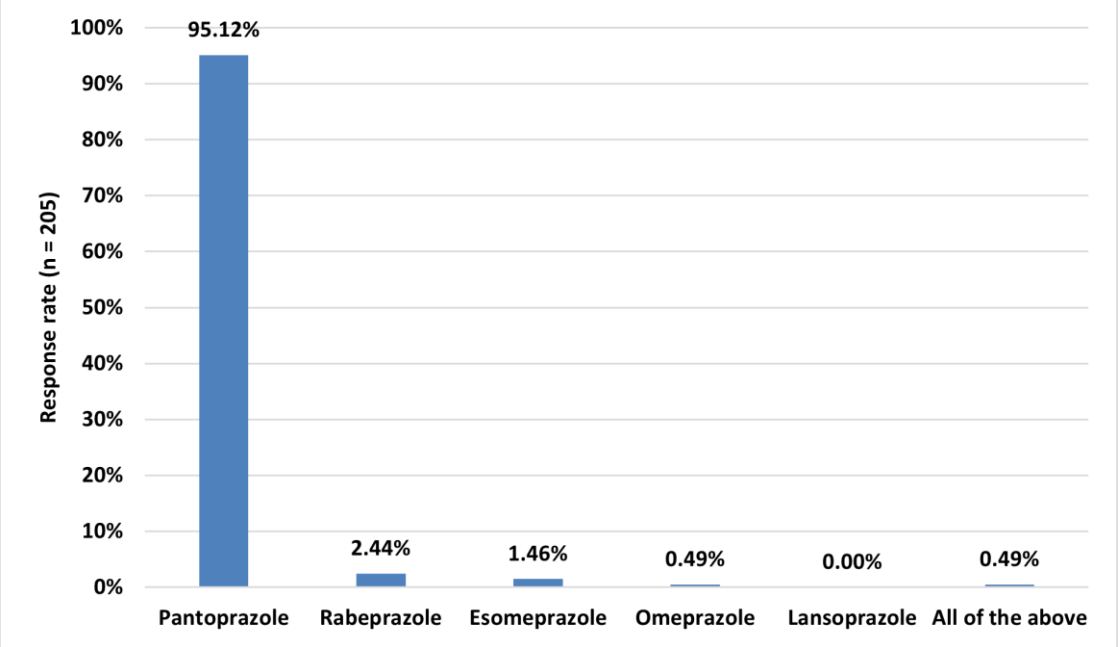

Fig. 2. Distribution of response to preferred PPI in routine practice

Table 1. Distribution of response to the most commonly preferred gastroprokinetic to be used in combination with PPI for GERD management

Preferred gastroprokinetic	Response rate (n = 205)
Domperidone	188 (91.71%)
Levosulpiride	13 (6.34%)
Itopride	4 (1.95%)

Table 2. Distribution of response to the advantage of using pantoprazole in routine clinical practice

Advantage	Response rate (n = 205)
Faster onset of action	93 (45.37%)
Prolonged acid suppression	46 (22.44%)
Safe and well-tolerable	50 (24.39%)
Prescribed for longer period	11 (5.37%)
All of the above	5 (2.44%)

Around 45% of the respondents reported a sedentary lifestyle as the major reason for GERD, while 39% noted it as an improper diet (Table 3). Approximately 57% stated pellets/capsules as the preferred dosage forms for PPI (Fig. 3). Most of the experts (85%) recommended using pantoprazole as an adjuvant therapy along with other medications. Around 32% of the clinicians reported prescribing PPIs and PPI combinations as therapy to patients with acid reflux, while the same number of respondents stated prescribing them to patients with GERD (Table 4).

Most of the clinicians (99%) stated no key side effects from using GERD for managing PPI. According to 57% of the respondents, GERD was more prevalent in the age group of 36-50 years (Fig. 4). Majority of the clinicians (65%) stated that patients complain about the occurrence of reflux symptoms both during the day and nighttime. According to 41% of the clinicians, GERD-related cough/hoarseness of voice was prevalent among 11-20% of the patients presenting to clinical settings. Most of the clinicians (93%) agreed on the increased prevalence of GERD among smokers.

Table 3. Distribution of response to the major reason for GERD

Reason	Response rate (n = 205)
Sedentary lifestyle	93 (45.37%)
Improper diet	79 (38.54%)
Medication	10 (4.88%)
Obesity	22 (10.73%)
All of the above	1 (0.49%)

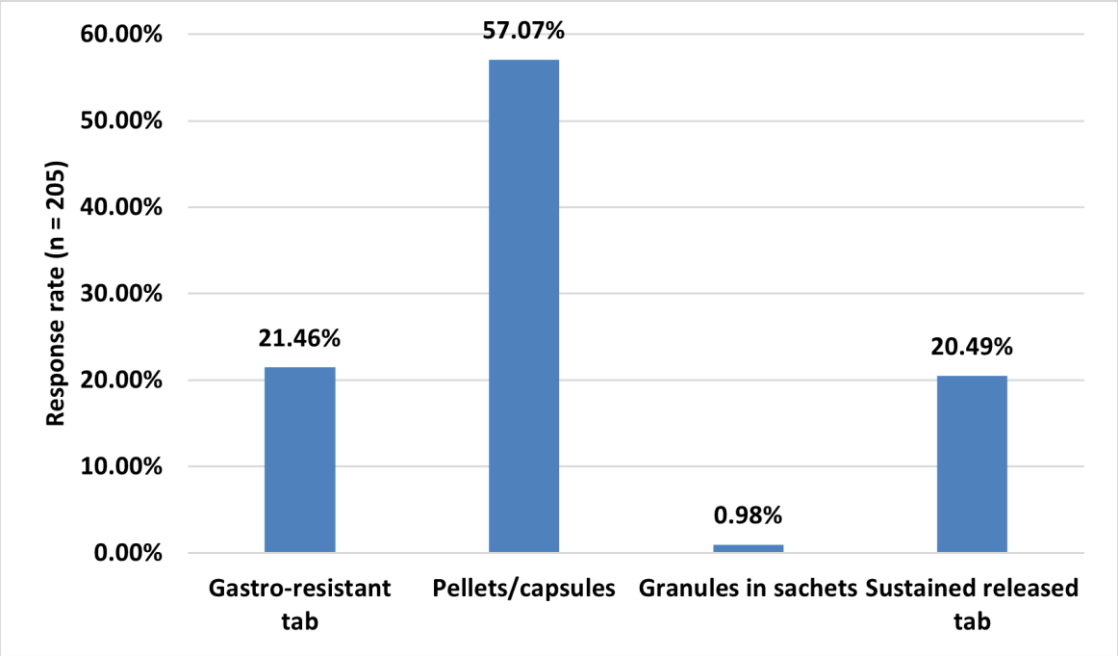

Fig. 3. Distribution of preferred dosage forms for PPI

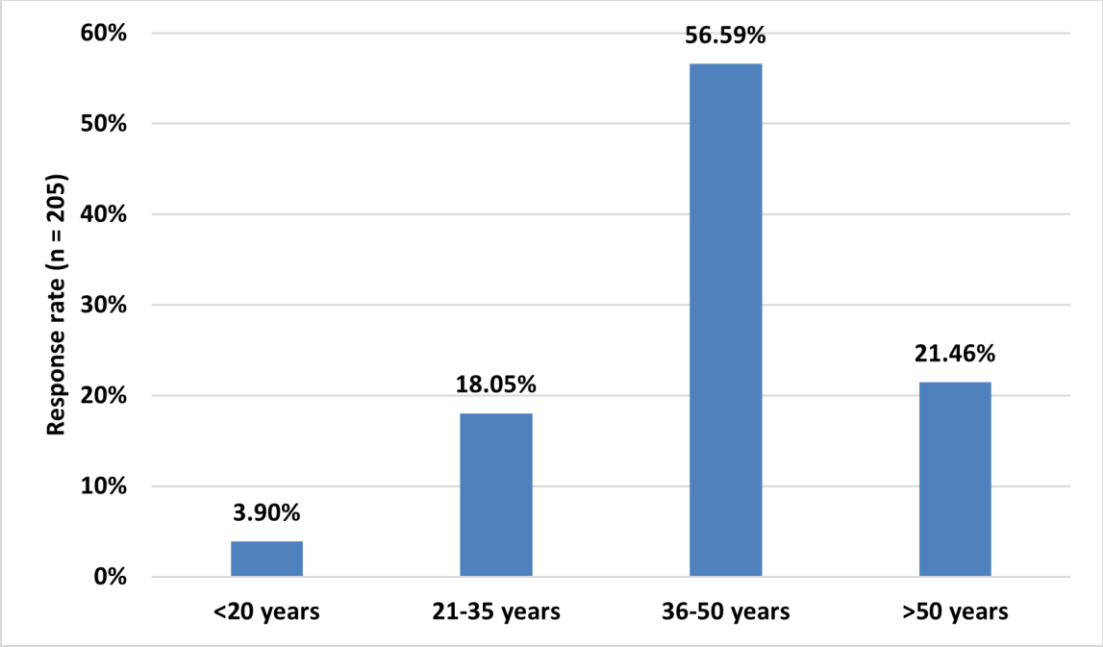

Fig. 4. Distribution of response to age group with increased prevalence of GERD

Table 4. Distribution of preference of PPI/ PPI combination therapy in different conditions

Conditions	Response rate (n = 205)
Heartburn	52 (25.37%)
Acid reflux	65 (31.71%)
Acid indigestion	14 (6.83%)
Upset stomach	4 (1.95%)
Ulcer	3 (1.46%)
GERD	66 (32.2%)
Acid feeling in throat	1 (0.49%)

4. DISCUSSION

The survey findings underscored the importance of adhering to established guidelines in managing GERD, with around 50% of respondents relying on ACG guidelines for clinical decision-making. Several national and international standards have been proposed for the GERD diagnosis and management such as the Asian-Pacific consensus, the Montreal definition, and the ACG guidelines [8,9]. However, currently, there was a lack of specific literature evidence outlining the common guidelines followed in Indian settings for GERD management. The utilization of ACG guidelines by a substantial portion of the current clinicians suggested a trend toward standardized care practices, which may enhance diagnostic accuracy and treatment efficacy for GERD patients.

Majority of clinicians emphasized symptoms like heartburn and regurgitation as key factor in diagnosing GERD, highlighting the significance of patient-reported symptoms in clinical assessment. In line with this finding, a questionnaire-based consensus survey carried out by Hojo et al. concluded that the presence of symptoms was the most important factor in diagnosing GERD in all Asian countries [10]. Ebell et al. also underscored the relevance of typical symptoms like heartburn in concluding the clinical diagnosis of GERD [11].

The current survey also noted a preference (87%) for using PPIs as the first-line treatment. This finding underscores their efficacy and acceptance among clinicians for managing gastritis associated with GERD. The study also demonstrated a preference among clinicians for prescribing 20 mg and 80 mg doses of pantoprazole for children and adults, respectively. Hojo et al. also concluded PPI as the most commonly prescribed therapeutic agent for managing GERD in all countries [12]. The 2015 evidence-based clinical practice guidelines for GERD, recommended PPIs as the primary pharmacological treatment for GERD, considering their superior efficacy in resolving symptoms and promoting mucosal healing [13]. The Indian Society of Gastroenterology, the Association of Physicians of India (API), and the American College of Gastroenterology (ACG) also advocate the use of PPIs as the empiric treatment for managing GERD [8].

Pantoprazole emerged as the preferred PPI among respondents (95%), with the rapid onset of action suggested as a key advantage of the drug for routine practice. A randomized study with 14 healthy *H. pylori*-negative male volunteers compared the effects of pantoprazole 40 mg and omeprazole 20 mg on meal-stimulated acid secretion. Pantoprazole 40 mg showed a significantly faster onset of action and higher anti-secretory potency than omeprazole 20 mg during the first 3 days of dosing. These findings suggested that pantoprazole acts more rapidly and has a stronger acid-suppressive effect compared to omeprazole at their standard oral doses [14]. Numerous multicenter randomized control studies underscored the efficacy of pantoprazole as the first-line drug for both treatment and maintenance therapy of erosive esophagitis associated with GERD when compared to than histamine-2 receptor antagonists. Pantoprazole 40 mg/day for 4 to 8 weeks was the optimal regimen for the treatment of moderate to severe GERD. Patients who received oral pantoprazole 40 mg/day demonstrated higher endoscopically confirmed healing rates at 4 weeks and 8 weeks, respectively, when compared to patients on ranitidine 150 mg twice daily [15-17].

In the current survey, domperidone was identified as the most commonly preferred gastroprokinetic in combination with PPI for GERD management, suggesting a comprehensive approach to symptom control. A systematic review and meta-

analysis of randomized clinical trials conducted by Zamani et al., comprising 11 studies with a total of 841 participants, found that combining a PPI with domperidone led to a significant reduction in global GERD symptoms. Adverse events associated with PPI plus domperidone treatment were comparable to those observed with PPI monotherapy [18]. Additionally, an open-label, prospective, multicenter, observational study titled PROGRESS-2 reported that domperidone improves esophageal peristalsis and gastric emptying, thereby enhancing the action of PPIs and effectively alleviating GERD symptoms [19]. Singal et al. concluded that the combination of pantoprazole and domperidone is effective and safe, with high rates of symptom improvement. The study also demonstrated significant symptom improvement in patients with non-erosive GERD at 4 weeks compared to baseline [20].

The survey findings emphasizing the critical role of PPIs, especially pantoprazole, in managing GERD and gastritis in Indian settings hold significant implications for clinical decision-making. These findings may help optimize treatment protocols and develop educational initiatives aimed at improving clinical outcomes. A notable strength of the study was the use of a well-designed and validated questionnaire to obtain data from clinicians. However, it was critical to recognize several limitations inherent in the survey methodology. Relying solely on expert opinion introduces potential bias due to differing perspectives and preferences among practitioners, which could have influenced the survey findings. Therefore, it was essential to consider these limitations when interpreting the results. Additionally, the survey may not capture emerging trends or recent developments in GERD management. Prospective trials or real-world observational studies were needed to validate the survey findings and offer a more robust understanding of optimal treatment approaches.

5. CONCLUSION

The findings emphasized the clinical importance of ACG guidelines for effective GERD management. Most clinicians favored PPIs as the first-line treatment, with pantoprazole being the preferred choice due to its rapid onset of action. Additionally, the survey highlighted domperidone as the most commonly preferred gastroprokinetic in combination with PPI for GERD management.

CONSENT

All clinicians provided written informed consent prior to the survey.

ETHICAL APPROVAL

The study was conducted after receiving approval from Bangalore Ethics, an Independent Ethics Committee which is recognized by the Indian Regulatory Authority, Drug Controller General of India.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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