Are we missing tracks while prescribing proton pump inhibitors? - An opinion from clinicians cross sectional hospital based questionnaire study

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Abstract

Introduction: Poton pump inhibitors are the main stage standard therapy for various gastrointestinal disorders such as upper gastrointestinal disorders, GERD, dyspepsia and peptic ulcer disease.[1] The availability of PPIs as an OTC drug and it's over utilization in multiple disease backgrounds with or without symptoms has subjected patients to a potential risk such as parietal cell hypertrophy and hypergastrinemia leading to rebound acid secretion.[2] Studies have shown that between 40% to 65% of prescriptions for a PPI fail to have an appropriate indication.[3] Inapt stress ulcer prophylaxis (SUP) in hospital wards and in the clinical OPDs, and failure to discontinue SUP prior to hospital discharge has amplified this risk.[4]

Aim: To analyse the views, opinion and judgement of every clinicians in our hospital regarding PPI prescription and factors they consider while prescribing and their views to decrease misuse of the same.

Materials and Methods: This is a cross-sectional, opinion deriving, hospital based questionnaire study where mostly physicians of all specialities were interviewed with a pre-structured questionnaire containing 14 questions.

Results: 93 respondents of multi-speciality background had variety of opinion about the practice of the PPIs in our hospital. 24.7% of them treat 31-40 patients per month on average with genuine gastrointestinal symptoms which mandate the use of proton pump inhibitors evidently. 50% of the practitioners told they will prescribe for patient satisfaction and patients request for gastric tablets. 46.7% of the practitioners didn't think of deprescribing PPIs in asymptomatic patients. Nearly 70% of them were either not sure or had any idea about the deprescribing PPI use.

Keywords: Proton pump inhibitors, Prescription practice, Deprescribing guidelines, Long term effects.

Introduction

Proton-pump inhibitors (PPIs) are among the most extensively prescribed drugs in the world, with more than 113 million prescriptions dispensed globally every year, with this, over-the-counter use, accounts for over $13 billion market worldwide.[5,6] Gastro-oesophageal reflux is a common medical problem associated with reflux movement of gastric contents into the oesophagus can cause a varying range of symptoms, from hiccups and burp to pain and physical discomfort.[7] As of 2016, there are six PPIs approved by the United States Food and Drug Administration (FDA)[8] and DCGI in India.

Drug	Doses (in mg)	IV availability	Generic	OTC
Omeprazole	10,20,40	Yes	Yes	Yes
Esomeprazole	20,40	Yes	Yes	Yes
Lansoprazole	15,30	Yes	Yes	Yes
Dexlansoprazole	30,60	No	No	No
Pantoprazole	20,40	Yes	Yes	Yes
Rabeprazole	20	No	Yes	Yes

FDA approved indications for the use of PPIs are maintenance and healing of erosive esophagitis, eradication of H pylori infection, prevention and treatment of NSAID induced gastric and duodenal ulcers and lastly in treatment of Zollinger Ellison syndrome.[9]

Specific Problem

Quite a narrow difference exists between improper versus the judicious use of proton-pump inhibitors (PPIs) in hospital and outpatient practices. The availability of PPIs as an OTC drug and it's over utilization by common and normal people for multiple disease backgrounds with or without symptoms has subjected patients to a potential risk such as parietal cell hypertrophy, enterochromaffin like cell hyperplasia and hypergastrinemia leading to rebound acid secretion.[2] To avoid this to happen, there needs to be a contemplation on how to best use these agents safely and effectively. Additionally, there is a need for guidelines for pharmacy use to assist with safe and effective treatment of reflux symptoms with OTC PPIs and lastly, patient education and awareness is a must[10] as most of them end up self-medicating themselves. Moreover, we have witnessed that physicians in our neighbourhood are motivated with patient compliance and prescribe PPIs for their satisfaction, since it is considered as one of the most well

tolerated drugs with minimal side effects. Considerable amount of people on PPIs fail to stop the drug even after the symptom control because of no immediate and evident adverse symptom arises with its use.

What our study is about?

Since PPIs are approved as OTC drug in many parts of the country, it is time to analyse the situation keenly and suggest some recommendations and guidelines for its safe use in the symptomatic population. Before that, we would like to have the opinion from the clinicians of our hospital, regarding their practice and knowledge about deprescription in outpatient clinic every day.

Literatures on overutilization

The question of overutilization is not from yesterday, it was first posed more than 15 years ago. A retrospective survey of prescribing data linked to new prescriptions for PPIs for 612,700 patients in the General Practice Research Database in the UK determined that the total volume of PPI prescriptions rose 10-fold in a 4-year period, and repeat prescriptions accounted for 77% of the total.[11]

Ann Arbor, MI Veterans' Administration hospital conducted a study and noted that of 946 patients, only 35% were prescribed PPI therapy for an appropriate documented upper GI diagnosis, 10% received PPIs empirically for symptomatic treatment based on extra oesophageal symptoms, 18% received PPIs for gastroprotection, and 36% had no documented appropriate indication for PPI therapy.[1]

Prescription for undocumented or unsupported diagnoses, nonadherence to step-down therapy or improper reassessment initiates the confusion and leads to improper PPI administration.

The aim of this study is to derive the opinion from the clinicians on their practice, their suggestions regarding controlling the misuse of PPIs in the target population.

Deprescribing guidelines

Deprescribing is well planned and overseen process of reducing or stopping of medication that might cause harm or yield any advantage. The primary objective of deprescribing is to reduce pill burden and harm, while maintaining quality of life. Dr Tannenbaum with Montréal university, Canada, has drafted a patient brochure to know the patients opinion on awareness of the risk of continuing the proton pump inhibitors and has suggested a deprescribing protocol " tapering off program" to reduce the overuse of PPIs.[12]

Similarly, deprescribing.org published an algorithm on how to solve this problem based on the works of Farell B *et al*., published in Canadian family medicine journal.[13]

Researchers concerned with geriatric health and polypharmacy are constantly working on developing a evidence based protocol program for the deprescribing of various medications which pose strong hazard when used for longer time.

Materials and Methods

This was a hospital based questionnaire study for clinicians in our hospital to seek their opinion regarding their practice and knowledge about the long-term complications.

Design: Cross-sectional, Questionnaire based study (paper and online survey)

Inclusion Criteria: Physicians and Clinicians (private consultants)

Exclusion Criteria: Interns and Undergraduates and others not willing to participate.

Sample size: 92 (by assuming that, 60% of the clinicians prescribe PPIs in their daily practice)

Sampling method: Convenient sampling technique

Questionnaire type: Open ended questions to know the opinion.

This questionnaire consisted of both closed and open-ended questions regarding the practice of PPI use. The details are as mentioned below

1. Questions 1-5 was to know the volume and frequency of GI symptomatic patients presenting to all OPD and the physicians general prescription practice in our college.
2. Questions 6-9 was to know the opinion of the clinicians regarding the factors they consider while prescribing PPIs and to evaluate whether these factors have any contribution for the misuse or overuse in ambulatory practice.
3. Questions 10-14 will know the clinician's strategies to prevent overuse of PPIs in ambulatory practice.

We circulated questionnaire in our hospital, among all the staff in the clinical departments including final year post graduates to almost 100 participants both online and offline. We received response from 93 participants, details mentioned in results column. This study was conducted for 1 month receiving answers from the clinicians.

Results

We have divided the results column into 3 parts as explained below:

Part 1: Results of the volume and frequency, prescription practice in our hospital setup

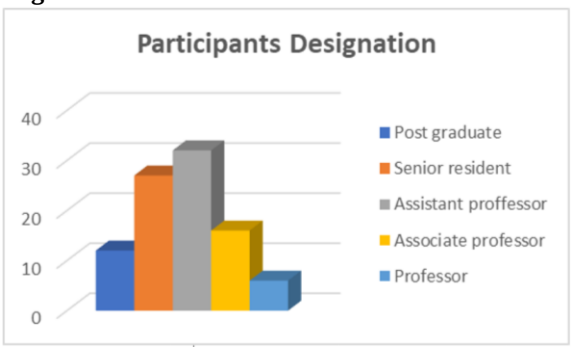
We received complete response from 93 participants of which 32 were assistant professors (maximum to participate), 27 senior residents, and > 20 professors replied to our interview (Graph 1). The respondents were of multi-speciality background, yielding from internal medicine (18.27%), orthopaedics (15.05%) and general surgery (13.97%) and rest were as mentioned in the table below (table: 1). At an average, 29% of the clinicians in our hospitals see about 11-20 patients and 24.7% of them see 31-40 patients with genuine gastrointestinal

symptoms which mandate the use of proton pump inhibitors evidently. The graph 2 shows about the percentage of patients appearing to OPD with symptoms like heartburn, regurgitation and distension sensation. The most commonly prescribed PPI in our set up was pantoprazole accounting for nearly 50%, followed by omeprazole and rabeprazole accounting for 28% and 16% respectively.

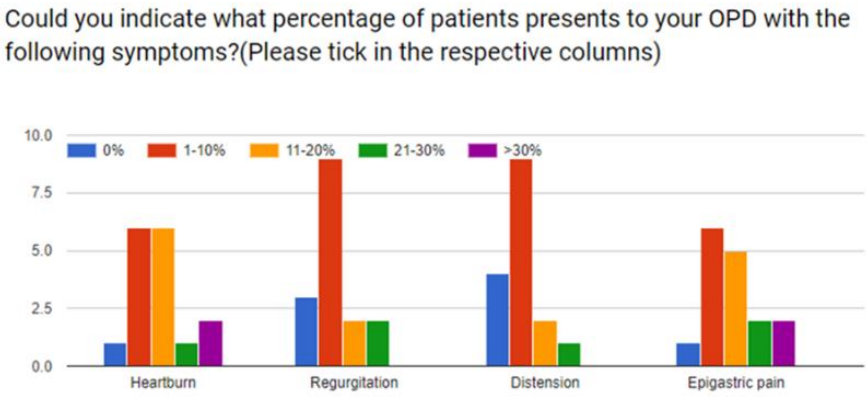
Table 1: Number of respondents from each speciality

Internal Medicine	17
General Surgery	13
Dermatology	11
OBG	7
Psychiatry	8
Anaesthesia	9
Orthopaedics	14
Neurology	4
Nephrology	2
Cardiology	3
Urology	5

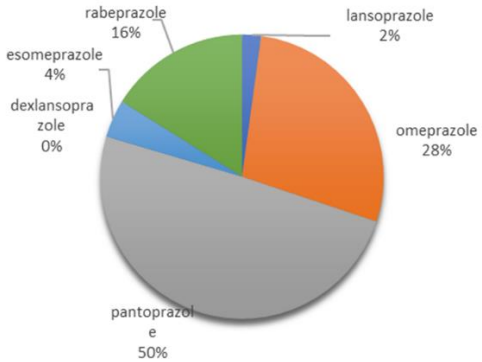
Graph 1: Representation of the participants designation



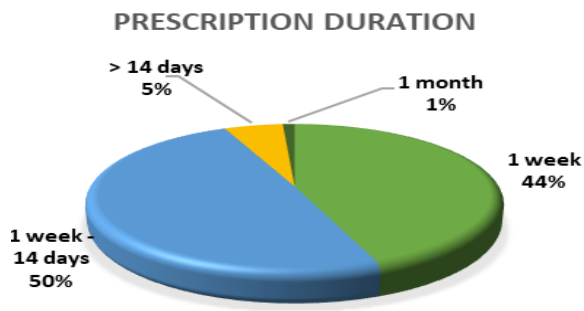
Graph 2: Showing the percentage of patients with symptoms appearing to OPD



Graph 3: The percentage of the PPIs used in our hospital setup



Graph 4: The graph showing the duration of prescription



Part 2: Results of the factors what physicians consider while prescribing PPIs

Regarding the question of associated medical condition where the clinicians are motivated to prescribe PPIs, more than 80% prescribe PPIs as an adjuvant drug with gastritis causing medication followed by

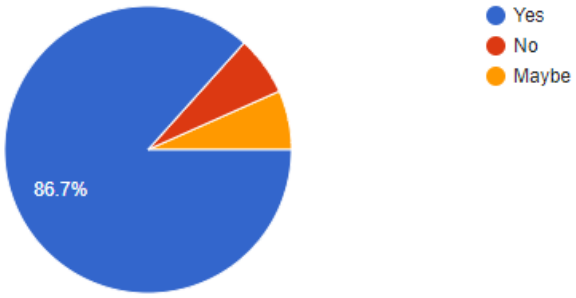
approximately 66.7% as a stress ulcer prophylaxis and for an intensive care patient on antibiotics. 50% of the practitioners told they will prescribe for patient satisfaction and patients request for gastric tablets, but, 72.3% of them expected their patients to come back to them regarding the revision of the duration of prescription once the prescribed course is completed. Almost 86.7% of the clinicians were aware of the long-term complication associated with PPIs considering its over usage. 6.7% of them were not sure about the effects of overutilization and answered no and maybe for the above question. (Graph 5)

Part 3: Results of the clinician's strategies to prevent over usage in ambulatory practice

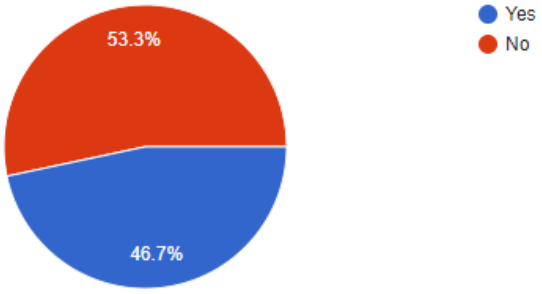
46.7% of the practitioners responded that they didn't think of deprescribing PPIs in asymptomatic patients, while the other 53.3% had opinions about deprescribing PPIs. (Graph 6)

Only 26.7% of the prescribers knew about the deprescribing guidelines and the rest were either not sure or had any idea about the deprescribing PPI use. (Graph 7) But, 89% of them answered that they would like to stop and restart the PPIs if they had to do so, while 11% of the practitioners chose to opt for dose tapering of the PPI prescription. (Graph 8)

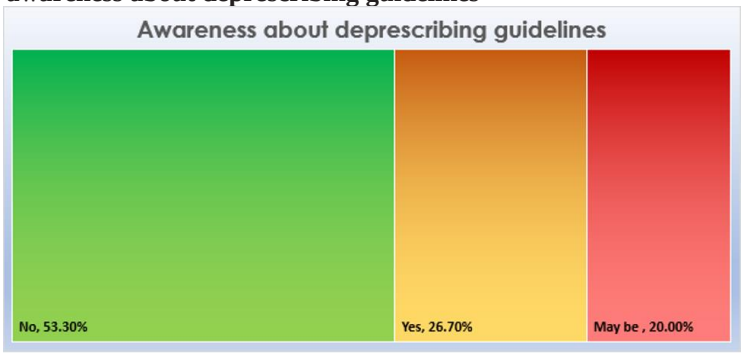
Graph 5: estimate showing the clinicians awareness about long term complications regarding the over usage of PPIs



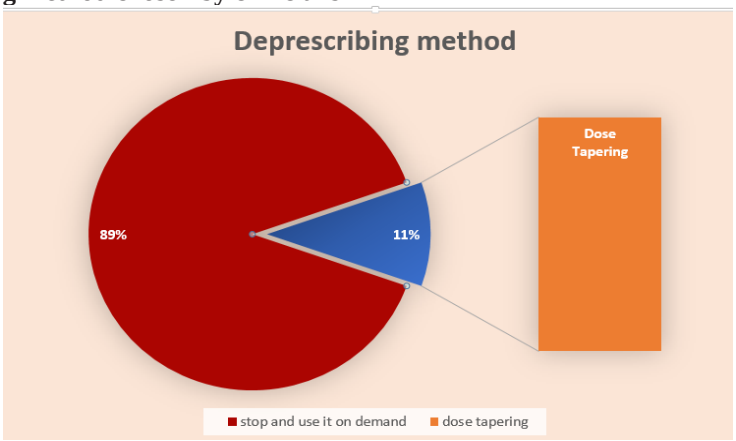
Graph 6: Pie chart showing the opinion about deprescribing PPIs



Graph 7: Showing the awareness about deprescribing guidelines



Graph 8: Deprescribing method chosen by clinicians



Discussion

This hospital based, clinician's opinion seeking questionnaire study of 93 doctors analysed the load of the cases with symptoms related to gastritis and their practicing techniques in our hospital, which is a tertiary care setup. The results of the frequency and volume of the cases encountered in a tertiary care setup like our hospital was widespread among all the broad specialities. We only wanted to consider the volume of cases in the outpatient setting of our hospital and the frequency of the genuine symptomatic cases seen every day rather than learning about the pharmacoeconomic parameters related to the over use of PPIs. There are lot of studies like Jones and Greenfield where they studied the PPI prescription practice among the GPs (general practitioners) and their economic views. [(14)] At an average 24.7% of clinicians treat around 31-40 patients per month in their daily general practice which commands the use of PPIs for symptoms like heart burn, regurgitation, distension and epigastric pain. Moreover, from the patient's perspective PPIs can give immediate relief from symptoms leading them to self-medicate. From the clinicians view also PPIs have proven to be quite efficacious in tackling symptoms and considered as a safe medication, this usually could have most likely reasons for its significant over prescription. Adding to this, the availability of PPIs over the counter from the pharmacy has aggravated the use inappropriately and for unnecessary reasons. When we asked our clinicians about their prescription duration, it was known that most of them practice 1 week to 14 days schedule of therapy and nearly 72.4% of them expected their patients to come back and revise the duration depending on their symptoms.

Conclusion

Throughout our study, prescribing doctors in our healthcare setup never felt that they prescribed PPIs unreasonably or inappropriately. Most of them had made some effort to reduce their prescription of PPIs. Situational pressures (patient satisfaction and request) were identified that reduced the doctor's ability to implement their chosen strategy (stopping and using or dose tapering) for prescribing PPIs. Like we know, the primary objective of deprescription is to reduce pill burden and harm by not varying the patient's quality of life, we recommend that the practitioners should start this program meticulously. The target audience here is private consultants, general practitioners, pharmacists and nursing staff to some extent can do the justice. Deprescribing is also recommended for antihyperglycemics and sedative benzodiazepines other than proton pump inhibitors. Finally, we conclude our study by saying that the PPIs, although being the most commonly used daily medication in the out-patient department and being easily accessible to the patients as an over the counter drug in all the pharmacies poses a greater risk to the individual and the burden to the healthcare community when overused or consumed for a longer duration. The private practitioners who prescribe should take a further step in monitoring the patient's monthly prescription and initiate deprescribing as and when required accordingly. We would also like to conduct this study on a larger scale of target population to motivate them about deprescribing PPIs and also to educate the pharmacy students who are doing in-patient and out-patient audits to be extra vigilant on prescriptions which contain over a month long use of PPIs.

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