ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 10, pp.59868-59873, October, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

ASSESSMENT OF ACID SUPPRESSANT DRUG USE IN CURRENT CLINICAL PRACTICE AND PATIENT SATISFACTION ANALYSIS

***Binu, K. M., Nimmy N John, Lovely Panavila, Jilu Varghese, Kavali Lahari and Doddayya, H.**

Department of Pharmacy Practice, N.E.T Pharmacy College, Raichur, Karnataka, India

ARTICLE INFO

Article History:
Received 14th July, 2017
Received in revised form
22nd August, 2017
Accepted 29th September, 2017
Published online 31st October, 2017

Key words:

Acid suppressant drugs,
Questionnaire survey,
H_2RA,
PPIs.

ABSTRACT

Background: There was limited data on assessment of quality of life in patients reporting breakthrough symptoms of acid related illness, as well as their responses to recommended adjunctive measures.

Objective: To identify appropriateness of acid suppressant drugs in hospitalized patients and to gain a better understanding of attitudes towards PPIs and H2 receptor blockers and usage patterns of these agents in individuals prescribed for acid related illness.

Materials and Methods: The present study was carried out for a period of 6 months among 400 patients prescribed with ASDs by following prospective observational design. A cross sectional questionnaire survey was also carried out to assess patient satisfaction regarding use of ASDs.

Results: Ranitidine was the most prescribed drug (54.75%). Most of patients received only one ASDs (72.75%) than two ASDs (25.55%) in dosage form such as injection (52.5%) and tablet (22.75%) respectively. The clinical study carried out in 100 participants to assess the patient satisfaction regarding the use of ASDs showed 67% of respondents reported use of drug less than once a week who were taking once a day (64%) regimen mostly. The condition for which physician prescribed acid suppressant drugs was heartburn (33%). 97% of them used non-prescription remedy without any recommendation. 79% of them do not use both acid suppressant drugs and non-prescription remedy on same day for which 74% of patient got proper advise to use the drugs.

Conclusion: We found the overuse and underuse of acid suppressant drugs in study hospital. There is a need for a local protocol for rational use of these agents in current clinical practice. Our study also highlighted the satisfaction of patient after the use of these agents.

Citation: Binu, K. M., Nimmy N John, Lovely Panavila, Jilu Varghese, Kavali Lahari and Doddayya, H. 2017. "Assessment of acid suppressant drug use in current clinical practice and patient satisfaction analysis", *International Journal of Current Research*, 9, (10), 59868-59873.

INTRODUCTION

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 intra-gastric pH above a certain target, generally pH 3 to 5; this target varies to some extent with the disease being treated. (Haynes, 1992) Acid-suppressing drugs that have been used to treat GERD include H2-receptor antagonist (H2Ras) and proton pump inhibitors. The efficacy of medical treatment depends on the ability to increase and maintain the intra-gastric and intra-esophageal pH above 4.0 over the 24-h period 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 H2RA, proton pump inhibitors block the final step of acid secretion, resulting in a profound and long-lasting acid suppression regardless of the stimulus. Results from 33 randomized clinical trials with over 3000 patients showed that symptomatic relief could be anticipated in 83% of proton pump inhibitors treated patients compared with 60% of patients receiving H2Ras. Similarly, esophagitis was healed in 78% and 50%of patients treated with proton pump inhibitors and H2Ras, respectively. (Nadja *et al*., 2005) PPIs are efficacious and cost effective for the treatment of severe gastro esophageal reflux and other acid related illnesses. Prescriptions for PPIs have increased dramatically over the last decade and available drug utilization data from Australia and UK indicate widespread use of PPIs for indications such as non-ulcer dyspepsia. There are limited data however on how patients actually use PPIs and on the frequency of break through symptoms during therapy. The present study was undertaken to provide information on self-reported PPI medication usage patterns and to evaluate the occurrence and management of acid break through symptoms. (Ballinger, 2011) Inappropriate use of acid suppression therapy has been consistently demonstrated in the inpatient general

Corresponding author:* **Binu, K. M.
Department of Pharmacy Practice, N.E.T Pharmacy College, Raichur, Karnataka, India.

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 H2RA an antacid or sucralfate for patients who are at high risk of developing a stress ulcer. (Durand *et al*., 2012) Acid inhibitors are among the most commonly used pharmaceuticals in the United States. In 2012, 14.9 million patients received 157 million prescriptions for proton pump inhibitors (PPIs); thus, use of PPIs could theoretically increase the population's risk of vitamin B12 deficiency. Gastric acid is required to cleave vitamin B12 from ingested dietary proteins for the essential vitamins to be absorbed, and it is produced by the same cells that produce intrinsic factor, a compound required for vitamin B12 absorption. 5 Thus, PPIs and histamine 2 receptor antagonists (H2Ras), which suppress the production of gastric acid, may lead to malabsorption of vitamin B12. Studies examining the relationship of PPI use and vitamin B12 deficiency have focused primarily on small groups of elderly individuals and yielded inconsistent results. Although some studies suggested that acid suppressive medications are associated with lower vitamin B12 levels in older populations. (Lam *et al*., 2013) There was limited data on assessment of quality of life in patients reporting breakthrough symptoms, as well as their responses to recommended adjunctive measures. There were few Indian studies carried out to assess the attitude of patients about the usage of acid suppressant drugs. In this context the department of pharmacy practice after the consultation with physicians of study hospital has planned to conduct the study entitled. Prescribing Pattern of Acid Suppressant Drugs in Current Clinical Practice and Patient Satisfaction Analysis with the aim to identify appropriateness of ASDs in hospitalized patients and to gain a better understanding of attitudes towards PPIs and H2 receptor blockers and usage patterns of these agents in individuals prescribed for acid related illness.

MATERIALS AND METHODS

The present study was carried out for a period of 6 months among 400 patients prescribed with ASDs by following prospective observational design. In 100 patients cross sectional questionnaire survey was carried out to assess patient satisfaction regarding use of ASDs. The study was conducted from November 2016 to April 2017 in Navodaya Medical College Hospital and Research Centre, Raichur. The study was approved by Institutional Ethics Committee (IEC) of the hospital. Data will be collected from the case records of patients undergoing treatment in the departments of general medicine. A separate data entry form for incorporating in-patient details was designed. A participant consent form was prepared and translated to local languages like kannada, Hindi, the most common languages spoken in the study area, a detailed explanation of the study was also provided to the participants before their consent was obtained. Study wards were visited daily by the project team and questionnaires were given to the patients and asked to fill.

Inclusion criteria

All the in-patients who were prescribed with acid suppressant drugs in the department of general medicine.

Exclusion criteria

- Patient who do not use acid suppressant drugs in the department of general medicine.
- Paediatrics and pregnant women
- Patients admitted in orthopedic, surgery, OBG, ICU and causality.
- Patients visiting outpatient department

Designing of questionnaire form (Robinson and Shaw, 2002)

The questionnaire is taken from the previous study (Robinson and Shaw, 2002) conducted in India which is usually filled by patient (except under special considerations like the patient is illiterate). The questionnaire included patient demographics, consulting physician, reason for admission and date of questionnaire. It includes frequency of acid suppressant drugs for stomach problems in a day or per week, take the acid suppressant drugs at the same time of a day, time of administration of the drugs in a day, any prescription drugs administered, common reasons for the use of acid suppressant drugs, frequency of non-prescription drugs, whether know the name of medicines administered, satisfied with the use of acid suppressant drugs and how safe it is to use. Each sector of the questionnaire included detailed questions regarding the usage pattern, reason, satisfaction, safety etc. This included both the open and closed ended questions. The questionnaire was translated into Kannada and Hindi languages.

Statistical analysis

Descriptive statistic was used to summarize the demographic characteristics, acid suppressant drugs usage data. Frequencies and proportions/percentages were used to describe categorical variables, and means and standard deviations were used to describe continuous variables.

RESULTS

A prospective observational study was carried out by reviewing the prescription of 400 patients who were prescribed with Acid Suppressant Drugs. The gender distribution of study population showed that among 400, 223 (55.75%) were male and 177 (44.25%) were female. Within 400 inpatients a maximum of around 28% belong to age group of 51-60 years followed by around 21% from age group of 31-40 years. Out of 400 patients the majority of patients were prescribed with H2 receptor antagonist (49.25%) followed by PPIs alone (21.75%) as well as combination of both (20.25%) treated for respiratory disorders (16.5%) followed by hypertension (12.5%) as shown in Fig. 1 & 2. Table 1 shows that Ranitidine (54.75%) was the most preferred drug followed by Pantoprazole (21.25%) and combination of Ranitidine and Pantoprazole (18%). Out of 400 patients, as shown in Fig. 3 & 4 most of them received only one ASDs (72.75%) than two ASDs (25.55%) in dosage form such as injection (52.5%) and tablet (22.75%) respectively. The gender distribution of respondents using ASDs showed 56% male and 44% female, out of which age group 41-50 years (32%) were more prevalent followed by 51-60 years (24%). Table 2 shows that 67% of respondents reported use of drug less than once a week. In fact, 64% of the study sample reported once a day ASD use. Almost 47% of respondents indicated that they typically took ASDs in the morning being the most popular time and 53% of the respondents used acid remedies in both cases that is before and after the symptoms arises as shown in Table 2.

Table 1. Breakups of ASDs Prescribed (N=400)

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

Table 2. ASDs Usage patterns among Respondents (N=100)

Reported frequency of ASDs	Usage Patterns	No. of participants
Use per Week	Every day	2
	4-6days per week	1
	2-3 days per week	3
	Once a week	27
	Less often than once a week	67
	Once A Day	64
	Twice A Day	34
Daily regimen of ASDs Use	Three or More times	2
	Morning	47
	Afternoon	27
Time of day for ASDs Administration	Evening	26
	Bedtime or at Night	0
	Take only before symptoms starts	20
	Take only after symptoms starts	27
Use ASDs in Relationship to symptoms	Take sometimes before and after symptoms	53
Questions	Yes	No
Do you take drugs at same time of day?	43	57
Recommendation from anyone to take non-prescription remedy	3	97
Do you take a non- prescription stomach remedy and ASD during same day	21	79
Received any proper advice regarding use of ASD's	74	26
Do you know the name of your medicines	34	66

Table 3. Patients Perception about ASDs

Questions	Yes	No
Do you take drugs at same time of day?	43	57
Recommendation from anyone to take non-prescription remedy	3	97
Do you take a non- prescription stomach remedy and ASD during same day	21	79
Received any proper advice regarding use of ASD's	74	26
Do you know the name of your medicines	34	66

Table 4. Satisfaction about acid suppressant drugs (N=100)

S.No.	Level of satisfaction	Number of participants (%)
1	Extremely satisfied	45
2	Not at all satisfied	46
3	I don't know	9

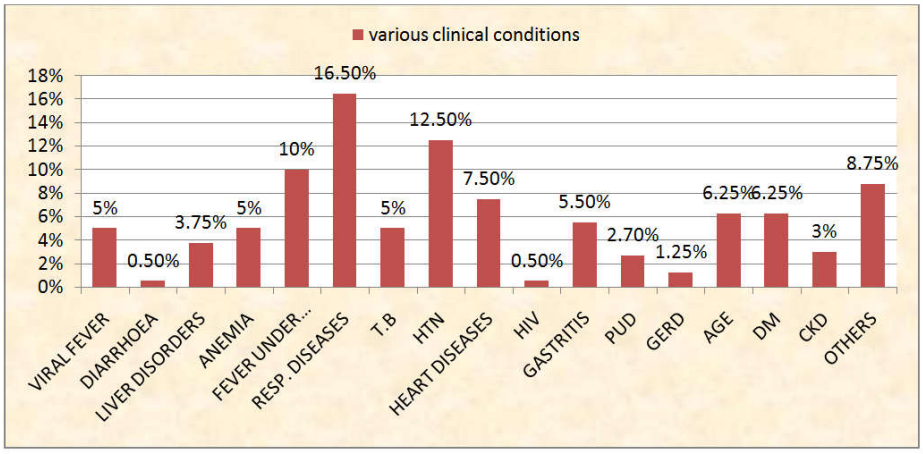

Fig.1. Various Clinical Conditions (N=400)

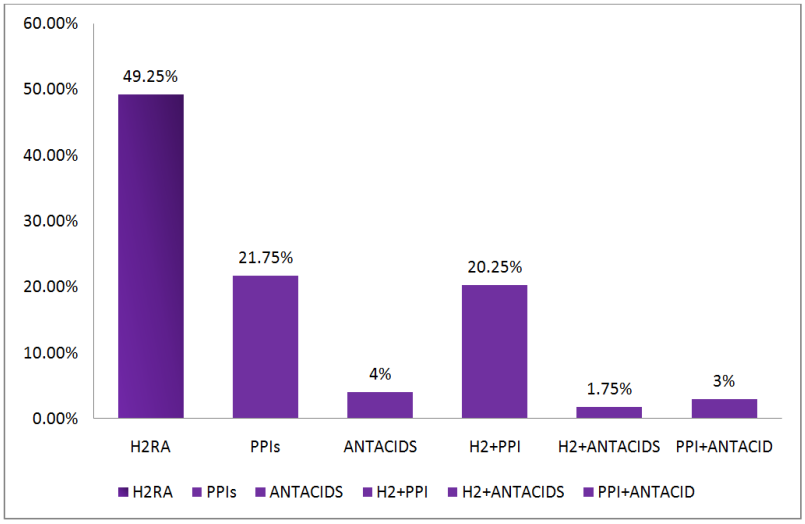

Fig.2. Categories of ASDs Prescribed (N=400)

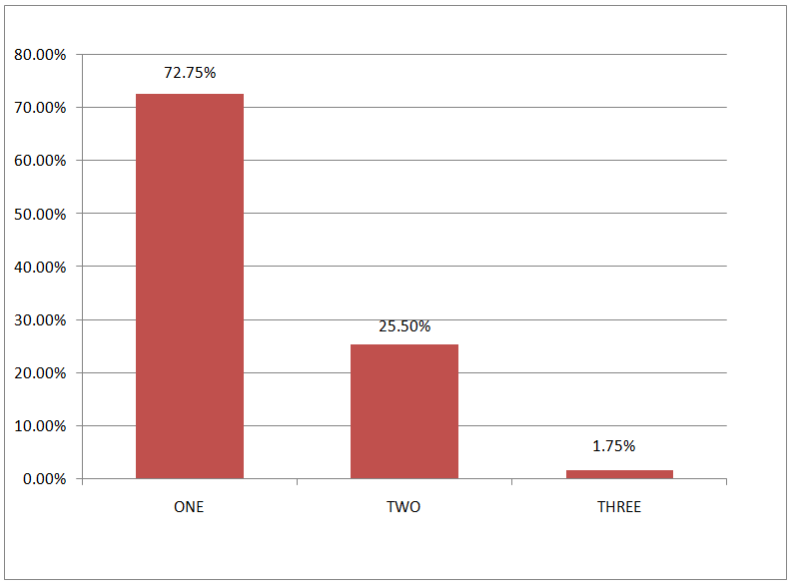

Fig. 3. Condition for which the doctor prescribed acid suppressant drugs (N=100)

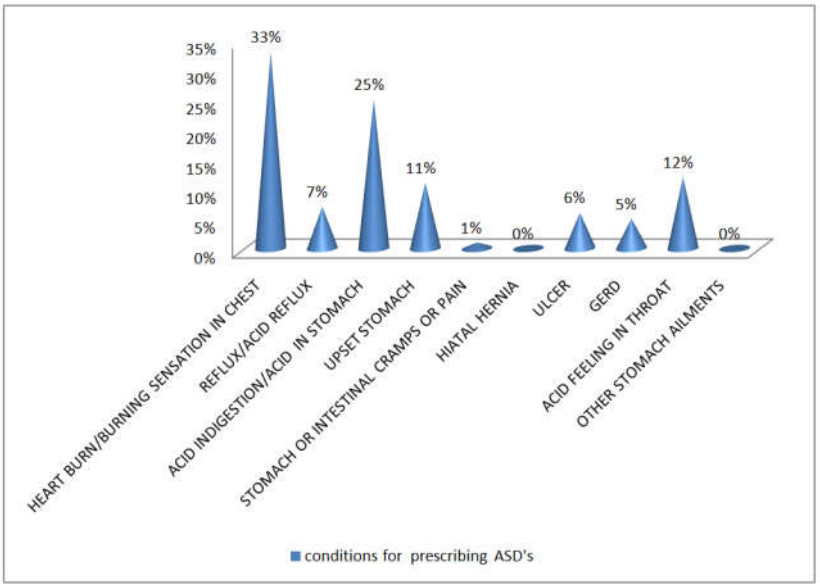

Fig. 4. No. of ASDs in A Prescription (N=400)

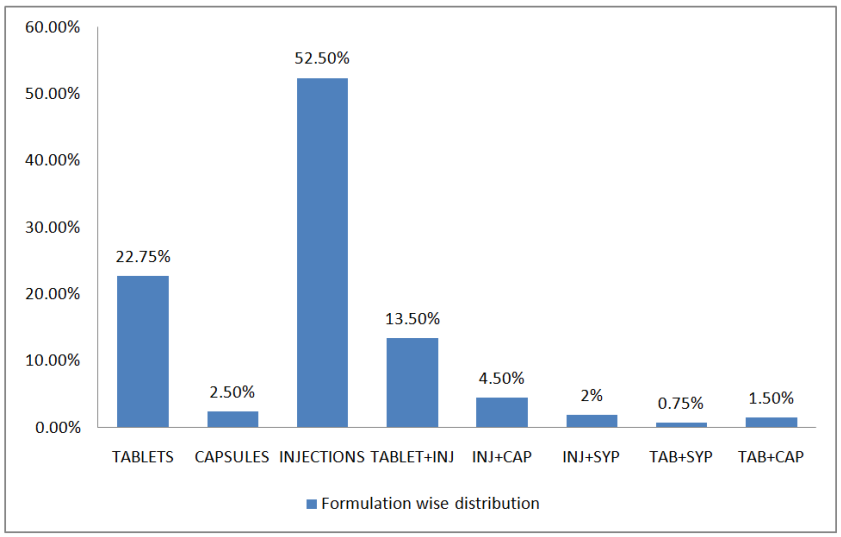

Fig. 5. Formulation Wise Distribution (N =400)

Most of the respondents (33%) received the prescription of ASD for relieving their heart burn & burning sensation in the chest as shown in Fig: 5. Forty three percentage of the respondents indicated that they typically took their ASDs at the same time of the day, 66% of the respondents do not know the name of the medicines, 21% of the study population taking both ASDs and non-prescription remedies at the same day. 97% respondents had taken ASDs upon recommendation and 74% of respondents does not receive any advice regarding the use of ASD as shown in Table 3. Overall 45% of the 100 respondents indicated that they were extremely satisfied with their ASD use as shown in Table 4.

DISCUSSION

On reviewing the patient data prescribed with acid suppressants, the gender distribution of study population showed that among 400, 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 Huren Kamp *et al*. (2002). Within 400 inpatients a maximum of around 28% belong to age group of 51-60 years followed by around 21% from age group of 31-40 years. It shows that ASDs are mainly used in geriatric patients, however 21% of general medicine patients belong to mid-age group. Similar results were reported by Jorge *et al*. (2013) Out of 400 patients the majority of patients were prescribed with H2 receptor antagonist (49.25%) followed by PPIs alone (21.75%) as well as combination of both (20.25%) treated for respiratory disorders (16.5%) followed by hypertension (12.5%) as shown in Fig. 1 & 2. This result shows that H2 receptor antagonist were prescribed in majority of population for immediate relief of gastric related problems, while PPIs were included in prescription along with H2 receptor antagonist for maintenance therapy. The study results were in contrast to the study conducted by Singh *et al*. [(9)] where PPIs were most commonly prescribed class of acid suppressants whereas the study results showed a similar trend with the study conducted by Almeman *et al*. (2013) Table 1 Summarises the breakups of ASDs prescribed. Ranitidine (54.75%) was the most preferred drug followed by Pantoprazole (21.25%) and combination of Ranitidine and Pantoprazole (18%). Out of 400 patients, as shown in Fig. 3 & 4 most of them received only one ASDs (72.75%) than two ASDs (25.55%) in dosage form such as injection (52.5%) and tablet (22.75%) respectively. Most of the physician used injection in acute condition and oral tablet as maintenance therapy after resolving the condition. The individuals interviewed in this study were representative of the target population of ASD. The gender distribution of respondents using ASDs showed 56% male and 44% female, out of which age group 41-50 years (32%) were more prevalent followed by 51-60 years (24%). Similar results were reported by study carried out by Robinson *et al*. (2002).

Table 2 Summarises the ASD usage pattern among respondents reported by respondents, 67% of respondents reported use of drug less than once a week. In fact, 64% of the study sample reported once a day ASD use. When surveyed about the drug of day for ASD administration, 47% of respondents indicated that they typically took ASDs in the morning being the most popular time and 53% of the respondents used acid remedies in both cases that is before and after the symptoms arises as shown in Table 2. Most of the respondents (33%) received the prescription of ASD for relieving their heart burn & burning sensation in the chest as shown in Fig. 5.The study conducted by Singh *et al*. (2011) and Huiges *et al*. (2006) also showed similar pattern. 43% of the respondents indicated that they typically took their ASDs at the same time of the day, 66% of the respondents donot know the name of the medicines, 21% of the study population taking both ASDs & non-prescription remedies at the same day. Similar results were reported by study carried out by Robinson *et al*. (2002). Majority of respondents 97% had taken ASDs upon recommendation & 74% of respondents does not receive any advice regarding the use of ASD as shown in Table 3. All respondents were asked to rate how satisfied they are about ASD use. Overall 45% of the 100 respondents indicated that they were extremely satisfied with their ASD use as shown in Table 4. Similar trend was observed in the study conducted by Chey *et al*. (2010)

Conclusion

This study had presented a schematic way of finding the satisfaction of patient after the use of ASDs. 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 clinical pharmacist in this situation appears strong intervention; and the clinical pharmacist, initially, could confine to identification of any deficiencies in pattern of prescribing and help to solve them.

Acknowledgement

We express our sincere thanks to Dr.S.S.Antin, Head, Department of General Medicine, all the physicians and nurses working in the medicine department of NMCH & RC for their valuable suggestions and support during our study period.

Conflict of Interest

Authors declares no conflict of interests.

REFERENCES

Almeman A, Alkhoshaiban AS, Rasool S. 2013. Prescribing Practices and Cost of Drugs for Peptic Ulcer in a Primary Health Center in Pulau Penang, Malaysia. *Trop J Pharm Res*., 12 (4): 629-34.

Ballinger A. 2011. Gastrointestinal disease. In, Kumar P and Clarke M (ed). Essentials of Kumar and Clark's Clinical Medicine. 5th ed., Saunders; 265.

Chey WD, Mody RR, Izat E. 2010. Patient and Physician Satisfaction with Proton Pump Inhibitors (PPIs): Are There Opportunities for Improvement? *Dig Dis Sci*., 55(12): 3415-22.

Durand C, Willett KC, Desilets AR. 2012. Proton pump inhibitor use in hospitalised patients: is overutilization becoming a problem?. *Libertas Academica*., 5:65-76.

Haynes RC. 1992. Pharmacotherapy of gastric acidity, peptic ulcers, and gastroesophageal reflux disease. In, Gilman AG, Hardman JG, Limbird LE (Eds.). Goodman and Gilman's The Pharmacological basis of Therapeutics. 11th ed., Newyork, MC Graw Hill, 987-89.

Huiges AS, Winters JC, Jong BM. 2006. Patients' views on dyspepsia and acid suppressant drug therapy ingeneral practice. *Eur. J. Gen. Pract*., 12(1); 10-14.

Hurenkamp GB, Grundmeyer HG, Bindels PE, Tytgat GJ, Van der hulst RWM. 2002. How do primary care physicians use long-term acid suppressant drugs?. *J Fam Pract*., 51(3):241-45

Jorge MA, Alejandra A, Daniel CA, Felipe CC, Felipe EL, Andres G *et al*. 2013. Prescribing patterns and economic costs of proton pump inhibitors in Colombia. Colombia Medica, 44(1):8-13.

Lam JR, Schneider JL, Zhao W, Corley DA. 2013. Proton pump inhibitor and histamine 2 receptor antagonist use and vitamin B_{12} deficiency. *JAMA*, 310(22):2435-42.

Nadja S, Johnny B, Vincent F, Jean-Philippe R. 2005. Use of proton pump inhibitors (PPI) in an internal medicine department. ICHV Division de Pharmacie, 11:24-25.

Robinson M, Shaw K. 2002. Proton pump inhibitor attitudes and usage: a patient survey. *Pharm Ther*., 27(4):202-06.

Singh VK, Prabhu K, Ponnudurai K, Singh PK. 2011. Prescribing pattern of acid suppressants in modern clinical practice - An analysis. *Der Pharmacia Sinica*, 2 (3): 67-73.

****