Proceeding S.Z.P.G.M.I vol: 8(1-2): 1994; pp. 30-33.

Lansoprazole in Treatment of Acid Peptic Disease: A Pilot Study

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INTRODUCTION

The controversy surrounding the etiology and pathogenesis of peptic ulcer disease is reflected in the varied nature of currently available therapeutic options based on the Schwarz dictum "no acid no ulcer" postulated in 1910[1]. This maxim focuses all efforts against the parietal cell function where four receptors namely histamine, gastrin, acetylcholine, and prostaglandin E_2 have been identified[2]. Stimulation of the first three receptors leads to increased acid secretion by activating H^+-K^+-ATPase, the enzyme catalyzing the final step in the acid secretion pathway. Inhibition of these receptors and the final common pathway by H^+-K^+-ATPase inhibitors has been shown to promote ulcer healing. A continous endeavour is made to find new agents for treatment of peptic ulcer with efficacy and safety being considered the foremost factors. We conducted an open pilot study in our department to evaluate the efficacy of a newly synthesized H^+-K^+-ATPase inhibitor, Lansoprazole in the management of acid-peptic disease[3].

MATERIALS AND METHODS

Ten patients were studied for a variable duration of 2 to 8 weeks depending upon the rate of ulcer healing.

All patients gave informed consent.

1. **Inclusion Criteria:**
Following patients were eligible for inclusion in the study:-

a. All patients of both sexes between 18 to 70 years of age who presented with duodenal ulcer and/or gastric ulcer with or without erosions, diagnosed on endoscopy.
b. Had not taken any H^+-K^+-ATPase inhibitors previosuly.
c. Had not received corticosteroids or anticoagulants during the previous 10 days.

2. **Exclusion Criteria:**

a. Absence of endoscopically confirmed ulcers.
b. Pregnancy or lactation.
c. Cirrhosis.
d. History of alcoholism or drug abuse.
e. Malignacy or surgery of any organ of alimentary tract.
f. Refusal by the patient to enroll in the study.

All patients underwent upper GI endoscopy at the outset, before treatment and subsequently at 2 weekly intervals to evaluate the response, till healing of lesion or end of study which ever occurred first. Lansoprazole was started with a dose of 30 mg/day without additional anti ulcer treatment during the study period, Gelusil was, allowed for symptomatic relief and patients instructed to keep count of the pills used.

Self assessment symptoms of pain, abdominal discomfort, feeling of fullness, flatulence, acid regurgitation, heartburn, nausea and vomiting were recorded on an ordinal scale of 0 to 3 (none, mild, moderate, severe) at the start of treatment and again at the end. Results were analyzed by Wilcoxon ranksum test and Chi square used to study correlation between variables. Additionally, a global evaluation of symptoms by patient and physician as well as response to treatment were recorded on an ordinal scale. Dietary habits regarding intake of spicy foods, regularity of meals, and smoking, chewing of tobacco and betel nuts were also recorded.

RESULTS

Demographic characters of the study group are presented in Table 1. Females comprised of 20% and males comprised of 80% of subjects. Thirty percent were smokers, 30% used betel nut regularly, 30% did not have regular meals, 40% used spicy foods and none chewed tobacco.

Etiological analysis showed a preponderance of

duodenal ulcers (70%) over the other 2 categories. 60% of the duodenal ulcers were located in first or second part with one ulcer in the duodenal bulb. One patient had an ulcer in the pre pyloric region. 20% patients had esopahgitis with a similar number having a deformed duodenal bulb while no associated lesion was found in 2 patients. Commonest associated finding was a persistently open esophagogastric junction. Ulcer size varied from 5-15 mm with bimodal peaks at 5 and 10 mm.

Table 1: Demographic characters.

Age	Mean: 46.60 (SD±21.51)
Sex	
Males	80%
Females	20%
Smokers	30%
Tobacco chewers	0%
Betel nut users	30%
Spicy food intake	40%
Regular meals	70%
Duration of treatment (wks)	Mean 2.90 (SD±0.994)
No of ulcers	Mean 1.30 (SD±1.418)
Size of ulcers (mm)	Mean 8.50 (SD±3.505)

Table 2 presents the data for mean scores of pain and associated gastrointestinal symptoms at the begining and end of the study.

Table 2: Mean scores for various parameters at the begining and end of study.

Parameter	*Score Begining Mean (±S.D)*	*Score End Mean (±S.D)*
Day pain	1.20 (±0.789)	0.0 (±0.0)
Night pain	1.10 (±0.876)	0.0 (±0.0)
Abdominal discomfort	1.20 (±0.789)	0.0 (±0.0)
Abdominal Fullness	1.10 (±0.180)	0.10 (±0.316)
Flatulence	0.60 (±0.516)	0.10 (±0.316)
Regurgitation	0.90 (±0.994)	0.0 (±0.0)
Heartburn	1.10 (±0.994)	0.0 (±0.0)
Nausea	1.0 (±0.816)	0.0 (±0.0)
Vomiting	0.80 (±0.919)	0.0 (±0.0)

All patients enrolled in the study showed endoscopically determined complete healing of ulcers within 4 weeks, 50% had healed ulcers within 2 weeks, 10% showed healing in 3 weeks while the remaining 40% had complete healing by the end of 4 weeks of treatment. Duration of treatment was found to be independent of all other parameters evaluated in this study ($P > 0.05$).

Table 3: Patient and physician assessment of therapy.

	Mean Score	*±S.D*	*±S.D*
Patient's perception	2.0	0.667	0.211
Physician's perception	1.7	0.482	0.153

Table 4: Z scores and 2 tailed probability with wilcoxon matched-pairs signed-ranks test for differences in mean scores at begining and end of study.

Paremeter	*Z score*	*2-tailed p*
Day Pain	-2.5205	0.117
Night Pain	-2.3664	0.018
Abdominal Discomfort	-2.5205	0.0117
Fullness	-2.5205	0.0117
Flatulence	-1.6903	0.0910
Regurgitation	-2.2014	0.0277
Heartburn	-2.3664	0.0180
Nausea	-2.3664	0.01800
Vomiting	-2.2014	0.0277

Table 3 presents data for global assessment both by patients and physician in terms of symptoms and response to treatment at the end of the study. Z scores and P-values using Wilcoxon Matched-pairs Signed-ranks Test for differences in pain, abdominal discomfort, feeling of fullness, flatulence, acid regurgitation, heartburn, nausea and vomiting at the begining and end of study are presented in Table 4. Analysis of the symptoms revealed a significant degree of improvement at the end of the treatment in each patient ($p < 0.05$) except for flatulence and day pain. 40% of patients stated "feeling better" while 60% regarded the symptomatic improvement as "much better". 60% patients considered response to treatment as "good" while 20% rated the response as

either "fair or excellent". Physician opinion of improvement showed 30% "much better" with 70% showing "better" in improvement. Physician's assessment of response to treatment was "good" in 40% and either "fair or excellent" in 30% each.

DISCUSSION

Peptic ulcer is a common disease today and of antiquity. Extensive research into the pathogenesis and treatment of this disorder has failed to provide a consensus therapeutic regimen. Most of the treatment modalities advocated for acid-peptic disorders over the last three decades have emphasized acid supression based on the postulated role of acid in its pathogenesis[2]. Lansoprazole belongs to a newer class of drugs that suppress acid secretion by inhibiting the rate limiting enzyme H^+-K^+-ATPase[3]. We evaluated the role of this drug in a pilot study of 10 patients with acid-peptic disease. All patients enrolled in the study showed complete healing of ulcers. No patient required drug therapy beyond 4 weeks with maximum healing observed at 2 weeks. Sex difference in the rate of ulcer healing was not significant. Although 30% of patients were smokers, took betel nuts, had irregular meals and used spicy foods, we were unable to establish any significant correlation between rate of ulcer healing and these demographic features. Patient's acceptance and compliance was good with no drop out due primarily to absence of any significant side effects and an early improvement of all the symptoms. Pain relief achieved at 2 weeks and healing rate of duodenal ulcer seen in our study is similar to that reported by other workers[4-7]. Noncomparative trials of lansoprazole in the treatment of gastric ulcers has shown a healing rate of 92% after 8 weeks of treatment with pain relief in 100% patients after 2 weeks of therapy[8]. Our results in gastric ulcer reveal a healing rate as well as symptomatic relief of 100% within 2 weeks. Reflux esophagitis due to prolonged exposure to acid in gastric contents is expected to respond to acid inhibition by lansoprazole. Endoscopic healing of esophagitis has been reported in 97% of patients after 4 weeks of treatment with 30 mg/day of lansoprazole while pain relief was obtained in 79% patients after 1 week[9]. Our results show 100% symptomatic relief within 2 weeks and endoscopic healing of esophagitis in 2 weeks. Earlier studies have demonstrated that Lansoprazole was well tolerated[10,11]. Our patients also showed good tolerance without any withdrawl of the drug due to side effects.

We conclude that Lansoprazole is a useful drug in the treatment of acid related disorders. Although the number of patients in this study is small, our preliminary results are very encouraging. Further clinical trials are needed to establish its efficacy in the treatment of peptic ulcers and reflux esophagitis nonrespnsive to other drugs and in the prevention of relapse following withdrawl of treatment.

ACKNOWLEDGEMENTS

This study was partially supported by a grant from Lederle Cyanamid (Pakistan) Limited. The authors wish to thank Mr. Asghar Ali Anjum stenotypist Federal Postgraduate Medical Institute for typing the manuscript.

REFERENCES

1. **Schwarz K.** Uber penetriende Magen-und Jejunalgeschwre. *Bruns Beitr Klin Chir 1910;* **67:** 96-128.
2. **Hunt RH, Howden CW, ones DB, Burget DW, Kerr GD.** The correlation between acid supression and peptic ulcer healing. *Scan J Gastroenterol 1986;* **21:** 22-9.
3. **Londong W, Barth H, Dammann HG, et al.** Dose related healing of duodenal ulcer with the proton pump inhibitor lansoprazole. *Alimentary Pharmacology and herapeutics 1991;* **5:** 245-54.
4. **Aaronson R, Dorsch E, Padgett C, et al.** Lansoprazole heals dudodenal ulcers. Presented at American College of Gastroenterology Meeting Boston, October 14-16, 1991.
5. **Holt S.** Proton-pump inhibition for acid-related disease. *Southern Medical Journal 1991;* **84:** 1078-87.
6. **Misawa T, Chijiiwa Y, Imazono Y, Fujishima H, Nawada H.** Effects of lansoprazole, a gastric proton pump inhibitor on endocrine function and healing in patients with peptic ulcer. *Therapeutic Research 1991;* **12:** 175-89.
7. **Sekiguchi T, Matsuzaki T, Horikoshi T, Nishioka T, Kusano M, et al.** Clinical effects of lansoprazole in the treatment of reflux esophagitis. *Therapeutic Research 1991;* **12:** 191-213.
8. **Kodama T, Fuse Y, Ohkawawa Y, Maruyam Y, Tsuji H.** Clinical effect of lansoprazole (AG-1749) on patients with gastric and duodenal ulcer. *Yakuri To Chiryo 1990;* **18:** 4891-4900.
9. **Dorsch E, Jones J, Padgett C, Jennings D, Greski P, et al.** Lansoprazole heals moderate to severe reflux esopahgitis. Presented at American College of Gsatroenterology Meeting. Boston. October 14-16, 1991.

10. **Nakagawa A, Ooka T, Kato T, Kim H, Sato N, Niwa M, Watanabe H, et al.** Phase I study of lansoprazole (AG-1749) antiulcer agent. Tablet form. *Insho Iyaku 1991;* **7:** 33-50.
11. **Ogoshi K, Kato T, Saito S, Niwa M, Watanabe H et al.** Clinical study of AG-1749 (lansoprazole) effects on serum gastrin levels and gastric mucosal ECL cell density, etc. *Yakuri to Chiryo 1991;* **19:** 933-946.

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