

Efficacies of Reverse Hybrid Therapy in Eradication of Helicobacter pylori Infection

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ABSTRACT

Introduction: Because the prevalence of antibiotic resistance markedly increases with time worldwide, anti-*H. pylori* treatment is continuing to be a great challenge for physicians in clinical practice. Eradication of *H. pylori* infection markedly changes the natural history of peptic ulcer in patients with duodenal or gastric ulcer. Most peptic ulcers associated with *H. pylori* infection are curable. Aim of present study was to study the efficacies of 14 days 'Reverse Hybrid Therapy' in *H. pylori* positive G.I. patients.

Material and methods: 100 *H. pylori* positive patients with upper G.I. complaints who underwent upper GI endoscopy were included in the study. *H. pylori* infection was documented by at least 2 positive results of Rapid Urease Test. Subjects with any of the following criteria were excluded from the study. 1. Previous eradication therapy 2. Allergy to any antibiotic used in study. 3. Co-existence of any serious illness. 4. Pregnancy or lactating women 5. Previous gastrectomy 6. Use of antibiotics within last 4 week. Detailed medical history and demographic details of the patients were recorded. Routine haematological tests and USG was done. Patients were given 14 days dual therapy ie quadruple regimen (proton pump inhibitor + amoxicillin + clarithromycin + metronidazole) for first 7 days followed by dual regimen of PPI+ amoxicillin for next 7 days. Patients were asked to report at 7, 14 days and at 6 weeks interval.

Results: Out of 97 patients 93 patients became negative for *H. pylori* after 6 week of Reverse Hybrid eradication therapy. It was observed that majority of patients enrolled in the study were in the age group of 41–60 years (50%) followed by below 40 yrs (27%), above 60 yrs (23%). Out of them, 74% were male and 26% were female.

Conclusion: Out of 97 patients 93 patients became negative for *H. pylori* after 6 week of Reverse Hybrid eradication therapy. Hence, Reverse Hybrid Therapy is equally potent therapy to Bismuth based therapy though the latter has a lot of side effects.

KEYWORDS: *H. pylori*, Rapid Urease Test, Proton Pump Inhibitor, Amoxicillin, Clarithromycin, Metronidazole, Reverse Hybrid Eradication Therapy

still recommended as a choice of treatment for the first line therapy of *H. pylori* infection.

However, the eradication rates of standard triple therapy have declined to less than 80% in most countries because of rising prevalence of clarithromycin resistance⁷ Several strategies including bismuth containing quadruple therapy have therefore been proposed to increase the eradication rate.^{7,8}

Although Bismuth Quadruple Therapy is recommended by American College of Gastroenterology guidelines. Yet, the complicated administration and side effects of bismuth Quadruple therapy reduces the adherence of patients to this therapy. So, there is a need of simple and effective therapy for *H. pylori*. Considering this hybrid therapy developed by Hsu et al.⁸ in 2011 which consists of a dual therapy with a proton pump inhibitor and amoxicillin for 7 days followed by a quadruple regimen with a proton pump inhibitor, amoxicillin, clarithromycin, and metronidazole for next 7 days. It achieved an eradication rate 97.4%. Subsequent randomized control trials demonstrated that 14 days hybrid therapies were comparable or more effective than 10 days bismuth based therapies. Currently, it is a recommended first line treatment of choice in the American College of Gastroenterology guideline⁶ and Taiwan Helicobacter pylori Consensus Report.¹

Reversing the sequence of drug administration (quadruple regimen followed by dual Regimen) can simplify hybrid therapy. Aim of present study was to study the efficacies of 14 days 'Reverse Hybrid Therapy' in *H. pylori* positive G.I. patients.

MATERIAL AND METHODS

In this study for a period of 3 months, 100 *H. pylori* positive patients above 18 yrs. of age, with upper G.I. complaints who underwent upper G.I. endoscopy at the time of first visit to OPD at CSSH, Meerut were enrolled.

H. pylori infection was documented by at least 2 positive results of Rapid Urease Test. Subjects with any of the

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INTRODUCTION

Helicobacter pylori (*H. pylori*) is gram negative gastric pathogen that colonizes approximately 50-60% of the world's population in the mucus linings of the stomach. *H. pylori* infection is the principal cause of chronic gastritis, gastric ulcer, duodenal ulcer, gastric adenocarcinoma, and gastric mucosa associated lymphoid tissue Lymphoma.¹⁻³ In most international guidelines^{4,6} 14 day standard triple therapy is

following criteria were excluded from the study. 1. Previous eradication therapy 2. Allergy to any antibiotic used in study. 3. Co-existence of any serious illness. 4. Pregnancy or lactating women 5. Previous gastrectomy 6. Use of antibiotics within last 4 weeks. A detailed medical history and demographic details of the patients were recorded. Routine haematological tests and USG was done. Patients were given 14 days dual therapy i.e. quadruple regimen (proton pump inhibitor + amoxicillin + clarithromycin + metronidazole) for first 7 days followed by dual regimen of p p i + amoxicillin for next 7 days. Patients were asked to report at 7, 14 days and at 6 weeks interval. At each visit patients were interviewed for their symptom relief and side effects. Upper G.I. endoscopy was done at 2 and 6 week after initiation of therapy with 'Rapid Urease Test' for H.pylori. Cure of H.pylori was defined by negative Rapid urease Test.

Endpoints: The primary outcome was cure of H.pylori. Post treatment H.pylori status was assessed 6 week after the end of eradication therapy. The secondary outcomes were the adverse events and treatment compliance.

RESULTS

In this study 100 H.pylori positive patients were studied.

It was observed that majority of patients enrolled in the study were in the age group of 41–60 years (50%) followed by below 40 yrs (27%), above 60 yrs (23%) (table 1).

Out of them, 74% were male and 26% were female. Almost ¾th patients enrolled in this study were male and ¼th were female (Table 2). Patients disposition is given in Table -3.

They were given Reverse Hybrid Therapy. Out of the 100 patients 3 patients could not continue therapy because of non compliance. Out of 97 patients 93 patients became negative for H.pylori after 6 week of eradication therapy. Side effects noted were not much and are given in the Figure-1.

Age group (years)	No. of cases	Percentage
< 40	27	27%
41-60	50	50%
> 60	23	23%
Total	100	100%

Table-1:

Gender/Sex	No. of cases	Percentage
Female	26	26%
Male	74	74%
Total	100	100%

Table-2: Gender wise categorization in percentages.

Alcohol	25
Gastritis	81
Gastric ulcer	4
Duodenal ulcer	7
Gastric cancer	1
Lymphoma	Nil

Table-3:

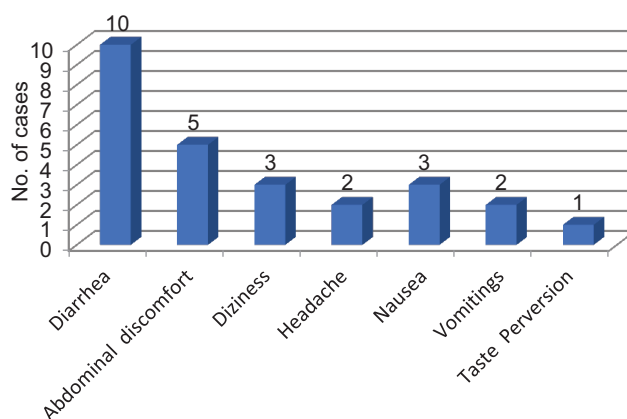


Figure-1: Symptoms

DISCUSSION

An ideal treatment for H. pylori infection should be highly effective, well tolerated, simple and inexpensive. Strategies to eradicate Helicobacter pylori infection could be improved by suppressing acid and extending the duration of therapy (optimization).⁹

The standard triple therapy is the most used treatment in routine clinical practice. However, the raising prevalence of clarithromycin and metronidazole resistance in recent year has caused a corresponding decrease in the eradication rates of H. pylori infection. It is clear that alternative regimens, particular for patients with clarithromycin-resistant strains of H. pylori, are urgently needed.¹⁰

As concomitant, sequential and hybrid therapies are generally composed of the same four drugs, and the available data suggest that they provide similar efficacy and tolerability, practical issues such as simplicity of the regimen take on greater importance. Using this logic, concomitant therapy seems the best choice of the clarithromycin quadruple therapies for both first-line and salvage therapy¹¹

Seven days sequential therapy with a proton pump inhibitor (PPI) and amoxicillin followed by a PPI, clarithromycin, and an imidazole typically achieves Helicobacter pylori eradication rates of 90–94%.¹²

Hence the eradication of Helicobacter pylori has been always a concern.¹³ According to American College of Gastroenterology Clinical Guidelines Bismuth quadruple therapy is recommended as first line treatment for H.pylori infections in the United States and hybrid therapy is an alternative option.

A previous randomized control trial documented that 12 day reverse hybrid therapy was more effective than 12 day standard triple drug therapy. The present study provided strong evidence that 14 day Reverse Hybrid Therapy and 14 day Bismuth quadruple therapy had comparable efficacies. Considering side effects and poor patients compliance of Bismuth quadruple Therapy, reverse hybrid therapy can be used as a standard first line treatment for H.pylori infections. Currently, Taiwan Helicobacter Pylori Consensus Report recommends 14 Day hybrid therapy as the treatment choice in first line therapy for H.pylori infection.

Bismuth quadruple therapy had a higher frequency of

adverse events than hybrid therapy (55.5% vs 15.7%)¹⁴ In conclusion, 14 day reverse hybrid therapy is not inferior to bismuth quadruple therapy as a first line treatment of H. pylori and it has fewer side effects. So, according to our this study, Reverse Hybrid therapy is a better alternative to bismuth quadruple therapy, as this is safe, well tolerated, easily available and inexpensive.

CONCLUSION

Out of 97 patients 93 patients became negative for H.pylori after 6 week of Reverse Hybrid eradication therapy. Hence, Reverse Hybrid Therapy is equally potent therapy to Bismuth based therapy though the latter has a lot of side effects.

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