

## **Consistent scheme of eradication therapy in peptic ulcer disease**

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**Key words:** Helicobacter pylori, peptic ulcer, eradication therapy, consistent scheme, effectiveness

Approved and recommended by the international scheme of eradication therapy of peptic ulcer (PU) demonstrated efficacy in this pathology. It was found that the success of H. pylori eradication reduces the recurrence of the disease, significantly reduces the risk of complications leading to disability of patients. A number of studies conducted to study of pharmaco-economic aspects of eradication therapy reported a decline in economic costs compared with treatment of PU without schemes of Helicobacter therapy [5]. Eradication therapy in patients with PU is absolutely necessary medical measures, which not only gives the projected clinical and preventive results, but also provides a complete cure [1].

Nowadays, therapy of H. pylori has been well studied and standardized, but despite of this there is still a whole series of problems of this therapy to be resolved. Firstly, as we have, and abroad there is a decrease of efficiency first-line therapy, which is associated with a fairly rapid increase in resistance of H. pylori to antibiotics. According to some reports, about one third of cases, the lack of eradication associated with the presence of resistance to clarithromycin and metronidazole. This, in turn reduces the possibility of successful eradication of the standard first-line therapy. The main reasons for the emergence of resistance to clarithromycin and metronidazole include increasing the number of patients receiving inadequate H. pylori therapy, low doses of antibiotics, short courses of treatment, wrong combination of medications and uncontrolled patient use of antimicrobial drugs [2, 3].

It was often found in the literature evidence of the successful overcoming resistance to clarithromycin and metronidazole by the addition of bismuth

preparations in the first-line regimens. The use of four-schemes therapy with bismuth significantly more effective in comparison with triple therapy, but requires receiving a large number of medicines for quite a complex scheme, which often reduces the patient's adherence to treatment. A low compliance is the second most common factor in unsuccessful therapy [4, 6].

A new innovative approach to conducting therapy of *H. pylori* was consistent therapy, developed by Italian researchers. Consistent therapy is carried out 10 days, during the first five days, the patient receives the proton pump inhibitor (PPI) standard dose 2 times a day, and amoxicillin 1.0 g of 2 times a day, 5 days and then held triple PPI therapy, clarithromycin (500 mg, 2 times) and tinidazole (500 mg, 2 times).

Comparative studies of the effectiveness of a consistent and standard triple therapy during 10 days has shown that the eradication observed in 91% of patients using sequential therapy, whereas the prescription of the standard triple therapy given successful eradication in 78% of patients. In addition it was found that clarithromycin resistant patients which using sequential therapy the eradication rate was 89% compared with 29% in the standard triple therapy [7]. Currently, sequential therapy is regarded as one of the most perspective and reserve schemes of eradication therapy.

**Aim of research** was to study the clinical efficacy of sequential schemes anti-helicobacter therapy in patients with duodenal ulcer (DU).

**Material and methods.** The clinical study included 40 patients with a verified diagnosis DU in the acute phase in age from 23 to 54 years (28 men, 12 women), divided into two groups. Patients of the first group of observation (n = 20) was administered a standard "triple" therapy using this new medicine - esomeprazole - PPI of third generation, amoxicillin 1.0 g twice a day, clarithromycin 500 mg twice daily for 10 days. A second group of patients (n = 20) was carried out therapy according to the following scheme: esomeprazole 40 mg per day and 1.0 g amoxicillin twice daily for 5 days, then changing to amoxicillin, clarithromycin 500 mg twice daily and 500 metronidazole mg twice a day for 5 days. Subsequently, the patients in both groups continued to take 20 mg of esomeprazole per day for 3 weeks.

Treatment efficacy was evaluated on the following criteria: clinical (in terms of relief of pain and stomach dyspepsia), endoscopic (in terms of scarring ulcers at 4 and 6 weeks of treatment), on changes in pH before and after 6 weeks of therapy according to the endoscopic pH meters, to change the degree of contamination of *H. pylori* of the gastric mucosa with two methods after 6 weeks of therapy.

Acidogenic and acid neutralization function of the stomach was assessed by topographic, trans endoscopy pH meter (AGM-03, Russia) before treatment and after 6 weeks of treatment. Evaluation of the effectiveness of eradication therapy was performed 6 weeks after anti-ulcer therapy by non-invasive breathing "Helic" test (AMA, St. Petersburg) and by the definition of local invasive urease activity in biopsy of gastric mucosa (CLO-test).

The results obtained were processed with variation statistical software package.

**Results and discussion.** The study of the decreasing of clinical symptoms is an indicator of effectiveness of the therapy in patients with DU. In both groups of patients pain relief was noted at five days of treatment in 75% of patients, and at 10 day of treatment was stopped in 100% of patients.

The result of treatment showed that at 5 day of treatment symptoms of intestinal dyspepsia as mild diarrhea was observed in 20% of patients of the first group, while in the second group this symptom was in 1 (5%) patient (Table 1).

The study of ulcer healing process in both groups showed in the first group scarring duodenal ulcers at the end of the fourth week of treatment was revealed in 80% of patients and at the end of the sixth week in 100% of patients. In the second group this parameters were 85% and 100% (Table. 1).

The study of gastric acidity in patients with DU showed increase of acidogenic function of stomach and decrease of the acid neutralization -function in gastric antrum. The result of treatment showed positive results in both groups of patients in the parameters pH values of gastric juices. But differences in the acid between two groups have not been significant (Table. 2).

The study of *H. pylori* infection with two methods, according to the recommendations of the third Maastricht Consensus (2005), revealed in all patients

(100%) the presence of *H. pylori* in the gastric mucosa. As can be seen from the data (Table. 3), the first group of patients treated with the standard "triple" therapy, complete eradication of *H. pylori* on the results of the two tests was 75%, which is 10% below the required threshold of a satisfactory effect. In the second group of patients, complete eradication of *H. pylori* was observed in 90% of patients that can be assessing as a good result.

Thus, result of studies have shown that consistent scheme of the eradication therapy is effective, as compared to the classical triple therapy which showed a higher percentage of eradication and reducing the side effects of antibiotic therapy.

### **Conclusions:**

1. Consistent scheme of eradication therapy in the treatment of DU provides highly efficient eradication of *H. pylori* (90%).

2. Prescription of consistent therapy significantly reduces the risk of dyspeptic complications of antibiotic therapy (5%) compared with triple therapy (20%), which is likely due to using of two large doses of antibiotics.

3. Using of sequential therapy provides high patient compliance to treatment. Comparative analysis on the effectiveness according to the criteria of efficiency / cost showed higher economic profitability of the treatment regimen for patients.

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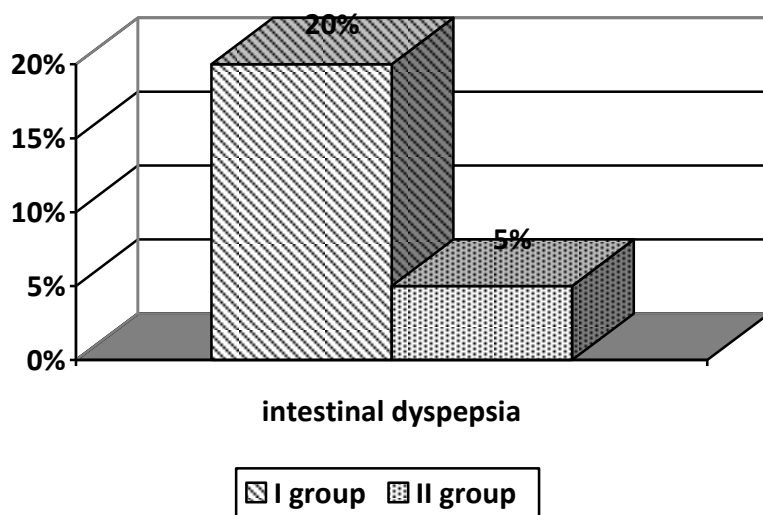
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The results of effectiveness of eradication therapy with two different treatment schemes of 40 patients with duodenal ulcer disease were presented in the article. The control group of patients received standard triple therapy with the use of ezomeprazol, amoxicillin and clarithromycin within 10 days. The main group of patients took ezomeprazol and amoxicillin within 5 days and then, also within 5 days took ezomeprazol, clarithromycin and metronidazole. The results showed that, along with the high of efficiency, sequential therapy has few side-dyspeptic effects.



**Fig. 1.** Symptoms of intestinal dyspepsia patients.

Table 1

**Terms of scarring of the ulcer**

Group of patients	After 4 weeks (%)	After 6 weeks (%)
<b>I group n=20</b>	80% (16 patients)	100% (20 patients)
<b>II group n=20</b>	85% (17 patients)	100% (20 patients)

Table 2

**The average pH of the control points in patients with duodenal ulcer**

Localization	I group		II group	
	Before treatment	After treatment	Before treatment	After treatment
Acidogenic area (the body of the stomach)	1,10±0,08	3,80±0,05*	1,20±0,06	3,80±0,20*
Area of the acid neutralization (antrum)	3,00±0,10	6,20±0,20*	3,10±0,07	6,90±0,15*
pH <sub>antrum</sub> -pH <sub>body</sub>	1,8	2,4	1,8	3,1

Note: \* — the difference is significant in relation indicators in patients with DU before treatment (p<0.05).

Table 3

**Comparative efficiency of eradication scheme of treatment  
of patients with peptic ulcer**

	<b>First group (n=20)</b>		<b>Second group (n=20)</b>	
	<b>Availability of Hp before treatment</b>	<b>The degree of eradication after treatment</b>	<b>Availability of Hp before treatment</b>	<b>The degree of eradication after treatment</b>
Breath and urease tests, Hp (-)	100%	75%	100%	90%