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Efficacy of Two-Week Treatment Using Bismuth, Omeprazole, Amoxicillin, and Ciprofloxacin on Eradication of *Helicobacter Pylori* compared to Three-Drug Treatment

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ABSTRACT

Introduction: *Helicobacter pylori* infection is a chronic gastrointestinal infection related to gastritis and gastric ulcers. In 1994, the World Health Organization declared that *H. pylori* infection is the definitive carcinogen of gastric cancer and the leading cause of cancer-related deaths in the world. The prevalence of *H. pylori* infection in Iran was 54%. The four-drug treatment based on ciprofloxacin is used by many doctors in Iran as the first treatment for eradicating the infection. This study examined the effectiveness of bismuth, omeprazole, amoxicillin, and ciprofloxacin treatment on *H. pylori* eradication.

Methods and Materials: In this semi-experimental study, indigestion patients who tested positive for *H. pylori* infection, as determined by endoscopy and biopsy results, and who visited Shariati Hospital from March 2022 to June 2023 were examined. After applying the inclusion criteria (suffering from indigestion and diagnosed with *H. pylori* after endoscopy and biopsy, no previous treatment with antibiotics and PPI, and consent to participate in the study) and exclusion criteria (death during the study, non-referral during the research and drug intolerance during the study), 228 patients were selected for the study. The patients were randomly divided into two equal groups: case and control groups. The case group was treated with omeprazole 20 mg twice a day + amoxicillin 1 g twice a day once a day + bismuth 240 mg twice a day + ciprofloxacin 500 mg twice a day for two weeks, while the control group received omeprazole 20 mg twice a day + clarithromycin 500 mg. They were treated with amoxicillin 500 mg twice a day for ten days. After one month, a stool antigen test was performed to confirm *H. pylori* eradication for all patients, and the results were recorded. The findings were analyzed with SPSS version 22 and the chi-square test.

Results: The frequency of endoscopic findings in the case group was as follows: gastritis (92%), duodenal ulcer (1%), esophagitis (3%), duodenal ulcer (6%), and gastric ulcer (2%). The helicobacter eradication rate at the end of the study was 81% in the case group and 89% in the control group. It was also observed that the eradication rate in patients with epigastric pain (p = 0.0001) and smoking (p = 0.0001)) was significantly lower than in other patients.

Conclusion and Discussion: Despite all the new treatments, there is still a chance of treatment failure, and there is no consensus on the standard treatment. It is suggested that in future studies, ciprofloxacin-based four-drug regimens will be compared with other four-drug and three-drug regimens in terms of *H. pylori* eradication.

Keywords: Amoxicillin, Bismuth, Ciprofloxacin, *Helicobacter pylori*, Omeprazole

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