

Effect of Helicobacter Pylori Treatment on the Number and Severity of Migraine Attacks

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Article information	Abstract
<p>Article history: Received: 23 Apr 2011 Accepted: 18 May 2011 Available online: 7 Sep 2011</p> <p>Keywords: Migraine Helicobacter pylori Aura</p> <p>*Corresponding author at: Department of Neurology, Zahedan University of Medical Sciences, Zahedan, Iran.. E-mail: arbakhshipour@yahoo.com</p>	<p>Background: Migraine is a common headache with an unknown cause. Migraine is about three times more common in women (18.2%) than in men (6.2%). The recent studies have posed the possible relationship between the Helicobacter pylori infection and migraine headache. This study tries to analyze the effect of treating <i>H. pylori</i> infection on number and severity of migraine attacks.</p> <p>Materials and Methods: In this clinical pilot study, a number of 60 patients with migraine were examined in terms of infecting with <i>H. pylori</i>. Patients with the infections were treated by <i>H. pylori</i> eradication standard triple regimen and the frequency and severity of their migraine attacks were measured for three months and finally the average of frequency and severity of attacks before and after treatment were compared.</p> <p>Results: The average frequency of the migraine attacks in patients with the <i>H. pylori</i> infection who have been treated was 7.1 before treatment and 2.7 after treatment ($p=0.001$). Likewise, the severity rate of such attacks in such patients was 9 which decreased to 4.5 after treatment ($p=0.002$).</p> <p>Conclusion: According to our study, patients with migraine attacks are preferred to be tested in terms of infecting with <i>H. pylori</i>, and eradication of this infection can be effective in decreasing of the migraine attacks.</p> <p>Copyright © 2012 Zahedan University of Medical Sciences. All rights reserved.</p>

Introduction

Migraine is a type of disorder which is specified with periodic and often pulsating headaches. Clinically, there are various types of migraines including with an aura and without aura. The most prevalent type of migraine is migraine without aura or common migraine. Migraine starts with unilateral and/or bilateral pulsating attacks and is followed with photophobia, nausea and vomiting. Such headaches are improved after 6-24 hours [1-3]. The cause of migraine has not been discovered so far; however numerous causes and hypotheses have been proposed for it. Vascular tonicity disorder is one of them [4]. On the one hand, *H. pylori* is the most prevalent chronic infection of the alimentary tract across the world which its degree varies in various parts of the world and mainly depends on the public sanitary status [4, 5].

Such infection strongly is accompanied with duodenal ulcer, gastric ulcer and stomach cancer (stomach adenocarcinoma, mucosal associated lymphoid tumors) [6]. Several case controls have been reported the effective relation between *H. pylori* infection and occlusive arterial disease (Acute myocardial infarction, Raynaud's phenomenon and ischemic stroke) and migraine, however, there are disagreements in their results [6, 7]. This microorganism is able to release materials with pre-inflammatory effects which can be attributed to the

increased risk of the extra-abdominal disorders [8]. Regarding the current disagreements in this issue, we have conducted a research to discover the effect of treatment of *H. pylori* infection on frequency and severity of the migraine attacks.

Materials and Methods

This clinical pilot study without controls started since March 2011 to October 2011, for six months, on 60 patients who have been diagnosed certainly with migraine. Nonprobability and available sampling was used for this study. The diagnosis of migraine made by a neurologist and diagnostic criteria of migraine headache used in the current study were according to the International Headache Society including unilateral pain (affecting one half of the head) and pulsating in nature and lasting from 4 h to 72 h, having some symptoms including nausea, vomiting and photophobia, where the symptoms are aggravated by routine activity.

After filling the questionnaire including demographic information and data about patient's headache, the patients were guided to an alimentary diagnostic clinic for diagnosing *H. pylori* infection. Esophagogastroduodenoscopy and Rapid Ureas Test (RUT) and or Fecal *H. pylori* Ag were used for

diagnosing the infection. Endoscopy was conducted only for patients with academic indication and were agreed to undergo endoscopy, while other underwent fecal *H. pylori* for diagnosing the infection. After examining all samples, patients with migraine whose *H. pylori* tests became positive were treated with standard triple regimen (including clarithromycin, amoxicillin and omeprazole for ten days) and they were followed up for a three-month course (each month once), hence the frequency and severity of the migraine attacks were recorded and analyzed during three months and were compared with them before treating *H. pylori* infection. Meanwhile all patients were treated with the medication used for migraine. Then data for each sample were entered into SPSS-17 software and were analyzed using descriptive statistics and t-test. $P < 0.05$ was considered meaningful.

Results

In this study, a number of 60 patients with migraine were included out of which 40 patients were diagnosed with *H. pylori* infection. The patients' age range was 18 to 50 years, with a mean of 33.3 ± 8.3 years, there were 14 men (23.3%) and 46 women (76.7%). 19 patients had diploma degree (31.7%), 19 patients had primary school degree (31.7%) and 12 patients were illiterate (20%) (Table 1).

Table 1. Patients' demographic information

Variable	H.pylori(+)		H.pylori(-)	
	No.	(%)	No.	(%)
Age(yr)	< 30	13(32.5%)	8	40%
	30-40	14(35%)	10	50%
	>40	13(32.5%)	2	10%
Sex	Male	9(22.5%)	5	25%
	Female	31(77.5%)	15	75%
Education level	Illiterate	7(19.4%)	5	22.7%
	Primary	14(36.8%)	5	22.7%
	Diploma	15(39.5%)	4	18.2%
	Academic	2(5.5%)	8	36.4%

No. : Number, yr: year

In this study, the average frequency of the migraine attacks was 7.8 ± 4.6 times a month, as patients with *H. pylori* infection experienced 7.1 ± 3.6 attacks per month while patients without infection underwent 9.2 ± 6 attacks per month. The average MIDAS (Migraine Disability Assessment) score for all patients was 8.8 ± 1.1 ; the average MIDAS score for patients with *H. pylori* infection 9 ± 1.2 ; and the average MIDAS score for patients without *H. pylori* infections was 8.4 ± 0.9 . The average frequency of migraine attacks in patients with the infection before treatment was 7.1 while it was decreased to 3.7, 3.3 and 2.7 in three following months respectively and MIDAS score was measured 5.6, 4.8, and 4.5 for three following months, respectively. For patients without *H. pylori* infection, the average frequency of the migraine attacks was 9.2 in the beginning of referring to the hospital and after three months (concurrent with the third month of treating infectious patients) it became 6.5 and MIDAS score was 8.4 and 6.8 in the beginning and end of treatment, respectively (Table 2).

Table 2. The frequency of times and severity of migraine attacks before and after treatment

Variable	No. of attack		Attack severity	
	Mean	SD	Mean	SD
H.pylori(+)	Before treatment	7.1 ± 3.6	9	1.2
	1 st mo. of treatment	3.7 ± 2.4	5.6	1.2
	2 nd mo. of treatment	3.3 ± 1.8	4.8	1.5
H.pylori(-)	3 rd mo. Of treatment	2.7 ± 1.5	4.5	1.4
	Without intervention	9.2 ± 6	8.4	0.9
	3 rd mo. Of treatment	6.5 ± 4.7	6.8	3

No: number, SD: standard deviation, mo: month

Discussion

A total of 60 patients with migraine were included in this study, out of which 40 patients (66.6%) were infected with *H. pylori* infection. As mentioned earlier, this study tries to analyze the effect of treating *H. pylori* infection on number and severity of migraine attacks. Thus, patients with the infection were treated in order to get rid of *H. pylori*. After treatment was finished, both frequency and severity of the migraine attacks were minimized considerably and the results confirmed a strong meaningful relation between treatment of *H. pylori* and migraine attacks. Likewise, in this study, no meaningful difference in terms of age, gender, education level, frequency and severity of the migraine attacks was observed between patients with and without infection.

Tunca et al. examined 70 patients with migraine and 60 controls. They compared duration and severity of the migraine attacks before and after eradication of *H. pylori* infection.

The researchers found that 84.6% of patients who have used *H. pylori* eradication and 75% of patients who have taken advantage of conventional treatment got better condition and underwent lower attacks [9].

Gasbarrini et al. examined 148 patients with migraine whose active *H. pylori* infection had been approved through urea breath test and they were treated with a proper antibiotic therapy and bacterium eradication treatment. Then frequency, severity and duration of their migraine attacks were followed for a year. For patients whose *H. pylori* infection had been eradicated successfully, a meaningful decrease in frequency, severity and duration of migraine attacks was seen in comparison with those in patients with recurrent attacks that this infection not eradicated [10].

In another study, Gasbarrini compared 175 patients (49 patients with aura and 126 patients without aura) with 152 homogeneous controls. The prevalence of *H. pylori* infection was identical in the two groups [11]. However, the results showed that gas.

A positive *H. pylori* strongly is related to migraine with aura and the severe inflammatory reactions of stomach mucosa against such infection cause releasing of the inflammatory mediators which can bring about cerebral artery stenosis and aura circumstance. In recent case-control study from Iran Hosseinzadeh and colleagues [12], evaluated *H. pylori* infection in 70 patients with

definite diagnosis of migraine with 70 healthy people without any history of migraine.

In this study the mean optical density (OD) value of IgG and IgM antibody to *H. pylori* was 60.08 ± 7.7 and 32.1 ± 8.7 for the case group, 21.82 ± 6.2 and 17.6 ± 9.4 for the control group, respectively. Researcher concluded that active *H. pylori* infection is strongly related to the outbreak and severity of migraine headaches, and *H. pylori* treatment reduces migraine headaches significantly. Our results are consistent with the results of previous studies and indicate the effect of *H. pylori* treatment in decreasing severity and frequency of the migraine attacks. However, our study has several limitations: inability to demonstrate eradication of *H. pylori* infection in patients, because placebo effect can be a reason for justifying the positive effect of treating patients with the *H. pylori* infection. On the one hand, in our study, symptoms of each patient after treatment were compared with themselves (before anti *H. pylori* treatment) while if a control group was available, then the placebo effect would become less and appraisable. Therefore, the future

studies with more subjects and a control group certainly will lead to better results.

Generally, according to our study, it can be said that *H. pylori* infection status is strongly suggested for patients with migraine because eradication of *H. pylori* infection may be helpful in treating and better controlling of migraine.

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

No conflict.

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