

# Management of *Helicobacter pylori*-associated Diseases: Survey of Attitudes Changes among General Practitioners in Bosnia and Herzegovina

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## ABSTRACT

The aim of the study was to investigate the attitude change of general practitioners (GPs) in Bosnia and Herzegovina considering the key decision points in the management of treatment of *Helicobacter pylori* (*H. pylori*)-associated diseases in 2008, after the four-year period. The first survey was done from February to April 2004. Two hundred and sixty four GPs in B&H responded to questionnaire especially designed for the study. In May 2008, four years after the first survey, data were collected again by same questionnaire from 53 GPs. The most important source of information about the management of treatment of *H. pylori*-associated diseases in both surveys were symposia sponsored by pharmaceutical companies, but the percent decreased from 53% in 2004 to 34% in 2008. The percent of GPs who named the Internet as the major information source increased from 5% in 2004 to 28% in 2008. Medical journals were used as the most important source of information by every fourth GP in 2008 almost in the same percent as in 2004. In 2008 the percent of GPs who considered that the main obstacle to proper management of *H. pylori*-related diseases was the patient's low income status which was doubled in relation to 2004 (64%; 31% respectively). Almost all GPs (98%) claimed to eradicate *H. pylori* in 2008 – a significant increase compared to 2004 when 71% of GPs reported eradication. Sixty percent of GP in 2008 claimed confirmation of infection prior to prescribing the eradication therapy which was significant increase in comparison to 2004 when only 9% of GPs confirmed presence of the *H. pylori* infection before starting eradication. All GPs who claimed to eradicate *H. pylori* infection used a proton pump inhibitor based on triple drug therapy, while in 2004 18% of GPs chose some other inadequate eradication therapy. As a conclusion, better selection of information sources eliminated management options of questionable value, but scarce economic resources in B&H will probably remain the main obstacle to the comprehensive *H. pylori* treatment.

**Key words:** attitudes, helicobacter pylori, management, general practitioners

## Introduction

The management of *H. pylori*-associated diseases is now done by primary health care physicians, according to world-wide adopted diagnostic and therapeutic protocols. Information about *H. pylori* became common in medical knowledge in Bosnia and Herzegovina (B&H) 5 years later than in the developed world, because of isolation caused by war. The survey of attitudes and applied algorithms in primary health care in B&H was done in 2004 so as to evaluate and correct the practice of general practitioners (GPs)<sup>1</sup>.

Results of 2004 study showed that the most important source of information about *H. pylori* management

to GPs in B&H were pharmaceutical industry sponsored symposia; the major obstacle in implementation of diagnostic and therapeutic protocols was lack of inexpensive and easy-to-get diagnostic test; 71% percent of GPs treated *H. pylori* infection in their practice; 18% of GPs prescribed an inadequate, non-PPI-based triple drug regimen, and only 9% of those GPs who prescribed eradication therapy confirmed the presence of infection before starting the eradication treatment.

According to what was said before, we concluded that unacceptably high number of GPs treated their patients in non-evidence based manner, using regimens of ques-

tionable efficacy. So, we published our study in regional medical journal to warn and change the practice of GPs' attitudes.

As in primary health care (PHC) in B&H, only diagnostic device in 2004 was rapid urease test, contacts with the managers of pharmaceuticals companies were made to help purchasing new diagnostic devices. As a result, other diagnostic methods, such as serology, histology and urea breath test became available to GPs in B&H in 2008.

The aim of the study was identification of attitudes' change in the management of *Helicobacter pylori*-associated diseases by GPs in B&H in 2008, four years after the first survey.

## Participants and Methods

Targeted population included the GPs who were working in Bosnia and Herzegovina in the primary health-care. All participants were working in PHC. A questionnaire created to serve the purposes of this survey was anonymous and consisted of 6 questions: information source on the management of *H. pylori*; approach to *H. pylori* eradication in *H. pylori*-associated diseases; the most prominent obstacle to the proper management of *H. pylori*-related diseases; approach to eradication of *H. pylori* in everyday practice; *H. pylori* infection confirmation before prescription of eradication therapy, and preferred eradication protocol.

Completing of the questionnaire took about 15 minutes.

Data were collected in two phases. Two hundred and sixty four GPs responded from February to April 2004<sup>1</sup>. In May 2008 data were collected again by same questionnaire from 53 GPs.

Intergroup differences were compared using the  $\chi^2$ -test. Degrees of freedom (df) were used. A p value of <0.05 was considered statistically significant. Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) software for Windows.

## Results

There was significant difference in considering importance of information source between 2004 and 2008 ( $\chi^2=30.8$ , df=3, p<0.001) (Table 1). Majority of GPs interviewed in 2008 reported that the most important source of information about the management of *H. pylori*-associated diseases were symposia and lectures sponsored by pharmaceutical companies, but the percent of GPs decreased from 53% in 2004 to 34% in 2008 ( $\chi^2=5.9$ , df=1, p<0.015). The percent of GPs who named the Internet as the major information source significantly increased from 5% in 2004 to 28% in 2008 ( $\chi^2=27.1$ , df=1, p<0.001). In both 2008 and 2004 the least important source of information was communication with local gastroenterologist (11% and 14%, respectively) with no statistically significant difference ( $\chi^2=0.007$ , df=1, p<0.932) Medical journals were used as the most important source of information in 2008 by 26% of GPs, almost in the same percent as in 2004 (28%) without significant difference ( $\chi^2=0.03$ , df=1, p<0.855).

Most GPs eradicated *H. pylori* in patients with ulcer (96% in 2004, 74% in 2008), and there was significant difference in four-year interval ( $\chi^2=27.1$ , df=1, p<0.001) (Table 2). Percentage of those who eradicated *H. pylori* in patients with gastro-oesophageal reflux disease (GERD) increased in a small percent (from 42% in 2004 to 51% in 2008;  $\chi^2=1.1$ , df=1, p=0.298), and to a statistically significant higher degree in functional dyspepsia (from 21% in 2004 to 47% in 2008;  $\chi^2=14.9$ , df=1, p<0.001), and on patients request (3% and 9% respectively;  $\chi^2=14.4$ , df=1, p<0.001), while there was no significant difference from 2004 to 2008 in percentage of GPs who eradicated *H. pylori* in patients with gastric cancer in family history (23% and 17% respectively;  $\chi^2=0.6$ , df=1, p<0.424).

Sixty-four percent of GPs considered the patient's low income status as the main obstacle to proper management of *H. pylori*-related diseases in 2008 (Table 3). Compared to 2004 when 31% of GPs thought the same that was a statistically significant increase ( $\chi^2=21.9$ , df=2, p<0.001). Thirty-six percent of GPs in 2008 found that the lack of easy accessible diagnostic tests was the major obstacle in *H. pylori* management, which was a statistically significant decrease compared to 2004 ( $\chi^2=19.4$ ,

TABLE 1  
THE MOST IMPORTANT SOURCE OF INFORMATION TO GENERAL PRACTITIONERS IN BOSNIA AND HERZEGOVINA ON THE MANAGEMENT OF *HELICOBACTER PYLORI*-ASSOCIATED DISEASES

The most important source of information	2004.		2008.	
	N	(% of GPs)	n	(% of GPs)
Sponsored symposia and lectures	141	(53%)	18	(34%)
Internet	13	(5%)	15	(28%)
Medical journals	76	(28%)	14	(26%)
Communication with local gastroenterologist	34	(14%)	6	(11%)
Total	264	(100%)	53	(100%)

n – number, GPs – general practiciones

**TABLE 2**  
ERADICATION INDICATIONS OF *HELICOBACTER PYLORI* BY GENERAL PRACTITIONERS IN BOSNIA AND HERZEGOVINA

Eradication indications	2004		2008	
	n	(% of GPs)	n	(% of GPs)
Ulcer	253	(96%)	39	(74%)
GERD	111	(42%)	27	(51%)
Functional dyspepsia	55	(21%)	25	(47%)
Patients with gastric cancer in family history	61	(23%)	9	(17%)
On patients request	7	(3%)	5	(9%)

n – number, GPs – general practitioners, GERD – gastroesophageal reflux disease  
Note: multiple answers were allowed. Therefore sum of answers exceeded 100%

**TABLE 3**  
GENERAL PRACTITIONERS OPINION ON THE MAIN OBSTACLE TO PROPER MANAGEMENT OF *HELICOBACTER PYLORI*-ASSOCIATED DISEASES

General practitioners opinion main obstacle to management	2004		2008	
	N	(% GP)	n	(% GP)
Patients financial inability to buy the prescribed drug	82	(31%)	34	(64%)
Lack of easy accessible diagnostic tests	167	(63%)	19	(36%)
Lack of information about <i>Helicobacter pylori</i> management	15	(6%)	0	(0%)
Total	264	(100%)	53	(100%)

n – number, GPs – general practitioners

df=1, p<0.001). Six percent of GPs in 2004 claimed that lack of information about the management of *H. pylori* infection was a serious obstacle to proper treatment, while there were no GPs who claimed that in 2008 ( $\chi^2=2.0$ , df=1, p<0.154).

Fifty-two GPs (98%) in 2008 claimed eradication of *H. pylori* (Table 4) – a statistically significant increase compared to 2004 ( $\chi^2=15.9$ , df=1, p<0.001), when 71% of GPs reported eradication therapy.

31 (60%) of those 52 GPs who claimed eradication of *H. pylori* in their everyday practice in 2008 confirmed the infection prior to prescribing the eradication therapy, that is statistically significant increase ( $\chi^2=62.0$ , df=1, p<0.001 z=9.462, p<0.001), since in 2004 only 9% confirmed *H. pylori* infection before they started eradication treatment (Table 5).

There was significant difference in eradication treatment of *H. pylori*-related diseases used by GPs in 2004 and 2008 ( $\chi^2=11.0$ , df=3, p<0.012) (Table 6). All 52 GPs (100%) who claimed eradication of *H. pylori* infection in everyday practice in 2008 considered a proton pump inhibitor (PPI)-based triple therapy the treatment of choice for their patients – a significant increase since 82% chose the same therapy ( $\chi^2=29.0$ , df=1, p<0.001 in 2004. In 2004 18% of GPs chose some other therapy as the first choice (PPI-based double therapy 11%, histamine 2 receptor antagonist-based double treatment 5%, antimicrobial agents 2%).

**TABLE 4**  
GENERAL PRACTITIONERS IN BOSNIA AND HERZEGOVINA WHO CLAIM TO ERADICATE *HELICOBACTER PYLORI* IN THEIR PRACTICE

GPs who claim to eradicate <i>H. pylori</i>	2004		2008	
	n	(%)	n	(%)
Yes	188	(71%)	52	(98%)
No	76	(29%)	1	(2%)
Total	264	(100%)	53	(100%)

GPs – general practitioners, n – number

**TABLE 5**  
CONFIRMATION OF *HELICOBACTER PYLORI* INFECTION BEFORE PRESCRIBING ERADICATION THERAPY BY GENERAL PRACTITIONERS IN BOSNIA AND HERZEGOVINA

Confirmation of <i>H. pylori</i> infection by GPs	2004		2008	
	n	(%)	n	(%)
Yes	17	(9%)	31	(60%)
No	171	(91%)	21	(40%)
Total	188	(100%)	52	(100%)

n – number, GPs – general practitioners

**TABLE 6**  
ERADICATION TREATMENT OF *HELICOBACTER PYLORI* USED BY GENERAL PRACTITIONERS IN BOSNIA AND HERZEGOVINA

Treatment for <i>H. pylori</i> used by GPs in BH	2004		2008	
	n	(%)	n	(%)
PPI-based triple therapy	154	(82%)	52	(100%)
PPI-based double therapy	21	(11%)	0	(0%)
H2RA-based double therapy	9	(5%)	0	(0%)
Antimicrobial agents	4	(2%)	0	(0%)
Total	188	(100%)	52	(100%)

GPs – general practitioners, n – number, BH – Bosnia and Herzegovina, PPI – proton pump inhibitor, H2RA – histamine 2 receptor antagonist

## Discussion

Information sponsored by pharmaceutical industry is the least relevant, as it could be biased. In 2008 it was still the main source of information about *H. pylori* eradication to GPs in B&H, but the change is obvious, as percent of GPs informed in this way decreased from 53% in 2004 to 34% in 2008. The percent of GPs who primarily searched the Internet increased from 5% in 2004 to 28% in 2008. Medical journals, as the most relevant source of information, were used only by 26% of GPs in 2008, almost in the same percent as in 2004. Most of GPs (74%) in 2008 eradicated *H. pylori* in patients with ulcer, but to a lower degree (96%) than in 2004. The reason is not clear, but it could be explained by recent knowledge that about 15% to 30% of gastric ulcers are related to use of anti-inflammatory drugs, and not to *H. pylori* infection. As world-wide accepted guidelines<sup>2</sup> recommended eradication therapy in patients with peptic ulcer disease associated with *H. pylori* and also in users of non steroidal anti-inflammatory drugs who have peptic ulcer – the same should be accepted in B&H.

Incomplete and inadequate implementation of guidelines for the management of *H. pylori* is not only present in B&H but it is also world-wide phenomenon. According to survey in USA<sup>3</sup> only 59% of primary care physicians eradicate *H. pylori* in patients with history of ulcer disease opposite to recommendation. Also, about 20% of primary care physicians do not read any of guidelines. O'Connor<sup>4</sup> in Ireland reported significant under-treatment of eradication therapy in patients with peptic ulcer disease by GPs as well as over-treatment in non-ulcer indications. According to 2008 Hong-Kong study<sup>5</sup> published guidelines were not always and completely followed in clinical practice.

The percentage of GPs who eradicated *H. pylori* in patients with functional dyspepsia significantly increased in 2008. European Maastricht Consensus recommended eradication therapy in infected patients with functional dyspepsia<sup>2</sup>. Management of dyspepsia by GPs in Europe is inconsistent and does not conform to existing evidence based protocols<sup>6</sup>, and generally current guidelines for the

management of *H. pylori* infection were not implemented in practice<sup>7</sup>.

There are no clear guidelines for treatment on patients' request, but three times more GPs in B&H eradicated *H. pylori* on demand in 2008 than four years before (9% and 3% respectively). There was no change from 2004 to 2008 in percentage of GPs who eradicated *H. pylori* in patients with gastric cancer in family history (23% and 18% respectively), although guidelines recommended treatment for *H. pylori* in patients with first degree relatives with gastric cancer.

Statistically significantly more GPs in B&H claimed to confirm the infection prior to prescribing the eradication therapy in their everyday practice, as diagnostic methods, serology, histology and urea breath test became available in B&H in primary health care in 2008. This is the same reason why much less GPs in 2008 than in 2004 considered the lack of easy accessible diagnostic tests as the major obstacle in *H. pylori* management. It should be stressed that pharmaceutical industry partially purchased the diagnostic equipment, and contributed to management change in *H. pylori*-associated disease of GPs in B&H.

Two times more (64%) of GPs reported the patient's low income status as the main obstacle to proper management of *H. pylori*-related diseases. Evidently this was a consequence of worsening of economic situation in B&H. No GPs in 2008 claimed that lack of information about the management of *H. pylori* infection was a serious obstacle to proper treatment.

Almost all GPs (98%) eradicated *H. pylori*, making eradication treatment usual, everyday procedure in their practice.

All 52 GPs who claimed to eradicate *H. pylori* infection considered a proton pump inhibitor (PPI)-based triple drug therapy to be the treatment of choice for their patients, while in 2004 18% of GPs chose some other obsolete non-(PPI)-based triple drug regimen as the first choice.

We stated that better selection of information sources improved the understanding of *H. pylori*-associated diseases and partially changed the practice of primary health

care physicians through elimination of therapeutic options of questionable value, but scarce economic resources in B&H will probably remain the main obstacle to the comprehensive *H. pylori* treatment. Further efforts should

be made through educational programmes in postgraduate training centres, they have been actively planned, but not realized in the last four years.

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## TRETMAN BOLESTI UZROKOVANIH HELICOBACTEROM PYLORI: ISPITIVANJE PROMJENE PRISTUPA U PRIMARNOJ ZDRAVSTVENOJ ZAŠTITI U BOSNI I HERCEGOVINI NAKON ČETVEROGODIŠNJEG INTERVALA

### SAŽETAK

Cilj studije bio je identificiranje promjena pristupa liječnika primarne zdravstvene zaštite u tretmanu bolesti uzrokovanih *Helicobacterom pylori* (*H. pylori*) 2008. godine; nakon četverogodišnjeg intervala. Dvije stotine šezdeset liječnika opće prakse u Bosni i Hercegovini (BH) je odgovorilo na upitnik koji je namjenski urađen za ovu studiju 2004. godine. Nakon četiri godine podaci su ponovo prikupljeni istim upitnikom od 53 liječnika opće prakse. Najčešći izvor informacija o tretmanu bolesti koje su uzrokovane *H. pylori* su ponovo bili simpoziji uz potporu farmaceutske tvrtke, ali je postotak s 53% u 2004. godini smanjen na 34% u 2008. godini. Postotak liječnika koji su naveli Internet kao glavni informacijski izvor je povećan s 5% u 2004 na 28% u 2008. godine. Medicinski časopisi su korišteni kao najvažniji izvor podataka u 2008. godini (28%) u gotovo istom postotku kao i u 2004. godini. Postotak liječnika opće prakse koji su držali da je glavna prepreka primjeni u svijetu prihvaćenog dijagnostičkog i terapijskog protokola *H. pylori* loše imovno stanje bolesnika je dvostruko viša 2008. godine (64%) u odnosu na 2004. godinu (31%). Gotovo svi liječnici opće prakse (98%) su liječili infekciju *H. pylori* 2008. godine, što je značajan porast u odnosu na 2004. godinu kada je to radilo 71% liječnika. Šezdeset posto liječnika u 2008. godini je tražilo dokaz infekcije prije uvođenja terapije iskorjenjivanjem, što je značajan porast u odnosu na 2004. godini kada je dokaz tražilo 9% liječnika. Svi liječnici koji iskorjenjuju *H. pylori* infekciju koriste trostruki tretman temeljen na inhibitoru protonske crpke, dok je 2004. godine 18% liječnika biralo neki drugi, neadekvatan terapijski pristup. Usporedbom pristupa u četverogodišnjem intervalu zaključeno je da je bolji izbor informacijskog izvora iskorijenio terapijske opcije upitne vrijednosti, ali će loša ekonomska situacija u BH vjerojatno ostati glavna prepreka primjerenom tretmanu *H. pylori*.