DOI: 10.5455/medarh.2013.67.402-404
Med Arh. 2013 Dec; 67(6): 402-404
Received: September 28th 2013 | Accepted: November 18th 2013

Published online: 28/12/2013
Published print: 12/2013

ORIGINAL PAPER

The Prevalence of Helicobacter Pylori Infection in Patients with Reflux Esophagitis – Our Experience

Zaim Gashi[1], Fadil Sherifi[1], Ragip Shabani[2]
Clinic of Gastroenterology, University Clinical Center, Prishtina, Republic of Kosova[1]
Institute of Pathology, University Clinical Center, Prishtina, Republic of Kosova[2]

Introduction and aim: The role of Helicobacter pylori in esophageal disease has not been clearly defined. To clarify this issue, we analyzed 120 patients with histologically confirmed esophageal disease. **Material and methods:** In this prospective study, 120 patients who underwent upper endoscopy examination were included; among them 70 patients with clinically, endoscopically and histologically confirmed GERD, and 50 patients with BE. This investigation was performed in the Clinic of Gastrohepatology in Prishtina, during the period: June 2009–December 2011. Each patient was investigated for *H . pylori* infection, by performing biopsy for HUT test. **Results:** In BE group, *H. pylori* infection was present in 16.0% of patients. In GERD group, *H. pylori* infection was present in 42.9%, and in patients of the control group, in 52.0% of cases. So, in BE group, the prevalence of *H. pylori* infection showed less significant difference, compared to the control group (P = 0.003) and in GERD group (P = 0.0035). Between GERD group and the control group there was no significant difference (GERD vs. G control. P = 0.421). **Conclusion:** The prevalence of *H. pylori* infection in patients with BE (16%) was lower in comparison with patients with GERD (42.9%) and with control group (p <0.01). The prevalence of *H. pylori* infection in patients with BE, especially those with LSBE (9.1%) was very low, which indicates a possible protective role of this microorganism. Key words: Barret's esophagus, gastroesophageal reflux disease (GERD), H pylori infection, biopsy, HUT-test

Corresponding author: Fadil Sherifi, MD, Msc. Clinic of Gastroenterology, University Clinical Center, Prishtina, Republic of Kosova.

1. INTRODUCTION

Helicobacter pylori (H. pylori) causes a long-term infection of the human gastric and duodenal mucosa (1). Mucosal colonisation predisposes for peptic ulcer disease, atrophic gastritis and distal (antral) stomach cancer (2), with various effects on gastric acid secretion. Genetic variability of *H. pylori* is high (3). Several genes have been identified that may play a role in the pathogenicity (4, 5). Most important is the cytotoxin-associated gene A *(CagA),* which is associated with peptic ulcer disease (6), and intestinal type adenocarcinoma of the stomach (7). Patients with duodenal ulcer often have high basal gastrin levels, high peak acid output and high 24-hour intragastric acidity (8-10). In contrast, patients with *H.* pylori-associated gastric ulcer often have hypochlorhydria (11).

Several reports suggest that the prevalence of *H. pylori* and especially the most pathogenic form–*CagA* might be lower in patients with gastroesophageal reflux disease (GERD), including Barrett's oesophagus (BE) than in the rest of the population (12, 13). One explanation for the negative association between mucosal colonisation with *H. pylori* and GERD is the effect of *H pylori* on acid production, since extensive gastritis involving the corpus may lower acid secretion by impairing parietal function.

The aim of this study was to determine the prevalence of *H. pylori* infection and its possible protective role in the appearance of GERD and its progression to BE.

2. MATERIAL AND METHODS

This investigation was performed on the Clinic of gastroenterohepatology. The time of investigation was June 2009–December 2011.

In this prospective study, from 120 patients, 70 patients were with GERD, and 50 patients with BE. All the patients were interviewed for their age, sex, reflux symptoms, chronicity, medications used, the presence of *H. pylori* infection, weight, family history, smoking. Upper endoscopy was performed by using the Videogastroscope GIF type Q 145 series. Endoscopic reflux changes was performed, according to Los Angeles (LA) classification (14, 15, 16). Diagnosis of infection with *H . pylori* was making by biopsy for HUT test (Astra Zeneca GmbH). Histological processing was performed in the Institute of Pathology in Prishtina and Skopje. During the recognition of intestinal metaplasia by biopsy, especially goblet cells can facilitate the use of alcian blue stain of pH 2.5 (17, 18, 19). Dysplasia is categorized as: low and high based on cytological and histological architectural abnormalities (20, 21, 22, 23, 24, 25, 26, 27).

The study included patients with positive anamnestic data, endoscopic findings positive for the presence of erosive gastroesophageal disease, which

last month did not receive any PPI treatment, or nonsteroidal anti-inflammatory drugs.

The study excluded patients who did not have typical anamnestic data for gastroesophageal reflux disease, those who have gastroesophageal erosive changes during endoscopy, and patients with pre-existing histopathological proven esophageal adenocarcinoma

The results were processed by modern statistical methods. Data processing is performed with Instat 3 statistical package. The difference was considered significant if P <0.05.

3. RESULTS

This study included 50 patients with BE, 70 patients with GERD and 50 healthy persons or persons with ulcer of the duodenum, as a control group. The average age of patients in BE group was 52.4 years. (SD ± 10.8 yr.) In the GERD group average age was 40.8 years. (SD ± 13.5 yr.), whereas in control group average age was 42.1 years. (SD ± 12.7 yr.). The age difference between groups was significant (One Way ANOVA F = 13.91, P <0.001). Among patients with BE, the most represented age group was 50-59 years, in the GERD-group the most representd age group was from 40-49 years.

In all groups included in this study, men were more represented than women. In the group with BE 78.0% were men, in the group with GERD 64.3%, and in the control group 60.0%. However, the difference was not statistically significant (χ2-test = 4.08, p = 0.130). Average body height of respondents in Group BE was 174,8 cm (SD ± 8,2 cm), in the GERD group it was 168,5 cm (SD ± 8,9 cm) and among patients of the control group it was 170, 4 cm (SD ± 9,5 cm). The difference was stetistically significant (One Way ANOVA F = 7.45, P <0.001). Patients in Group BE were higher than those of group GERD (BE vs GERD P <0,001), and also higher than the control group (BE vs control group: P <0,05), and between the average heights of GERD group and the control group, the difference was not statistically significant (GERD vs. g Control. P> 0.05).

Patients in group BE smoked larger number of cigarettes (60%) than patients in the group with GERD (37,1%), as well as comparing to patients of the control group (50.0%). The difference was statistically significant (χ2 = 6.26, SS = 2 P = 0.044). Regarding alcohol consumption, the difference was not significant (χ2 = 0.316, SS = 2, P = 0.854). As for the level of education, the difference was significant (χ2 = 6.48, SS = 2, P = 0.039) and the family history showed a significant difference (χ2 = 9.44, SS = 2, P = 0.009). Patients in BE group (4.0%) received less medications than patients in the GERD group (5.7%), as well as comparing to the control group (14.0%). Acid reflux by night was more expressed in patients with Barrett-esophagus.

Patients in BE group and GERD group had higher BMI, in comparison with patients of the control group; One Way ANOVA obtained a significant difference (One Way ANOVA F = 23,27, P <0.001). Also in patients from BE group, average value of BMI was higher than in patients of GERD group (BE vs. GERD., P <0.001), and in both groups BMI was higher than in patients of the control group (BE vs Control g. P <0.001, GERD vs. g Control. P <0.01).

The difference between the duration of symptoms was significant (One Way ANOVA F = 161.5, P <0.001; BE vs. GERD P <0.001, BE vs. G control. P <0.001,. GERD vs. G control. P <0.001). The duration of symptoms in BE group was 27.8 years. (SD ± 2.16 yrs) In GERD group it was 15.2 years. (SD ± 1.57 yrs) and in control group 4.4 yr. (SD ± 1.85 yrs). In BE group there were 40 patients (or 80.0%) with hiatal hernia. In GERD group there were 30 patients (42.9%) with hiatus hernia. It was concluded that hiatal hernia was more common in the group with BE, with a statistically significant difference (χ2-Test = 15.1, P <0.001).

In patients included in the study, the prevalence of infection with *H.pylori* was also analyzed. In BE group, *H. pylori* infection was present in 16.0% of patients. In GERD group, *H. pylori* infection was present in 42.9%, and in patients of the control group, in 52.0% of cases. So, in BE group, the prevalence of *H. pylori* infection showed less significant difference, compared to the control group (BE vs. control group, χ^2-Test = 12.87, P = 0.003) and in GERD group (BE vs. GERD; χ2-Test = 8.52, P = 0.0035). Between GERD group and the control group there was no significant difference (GERD vs. G control. χ^2-Test = 0.64, P = 0.421, (Table 1, Figure 1).

Regarding endoscopic type of BE and the presence of infection with *H. pylori*, there was no significant difference (Fisher Exact Test, P = 0.665). Infection with H. pylori was present in 17.9% of patients with SSBE and 9.1% of patients with LSBE

Groups		HP+	HP-	Total
BE	N	8	42	50
	%	16.0	84.0	100.0
GERD	N	30	40	70
	%	42.9	57.1	100.0
Control gr.	N	26	24	50
	%	52.0	48.0	100.0
BE vs. control gr. χ2-test = 12.87, P=0.003 GERD vs control gr. χ2-test = 0.64, P=0.421 BE vs GERD; χ2-test = 8.52, P=0.0035				

Table 1. Prevalence of infection with H. pylori in patients with BE and GERD

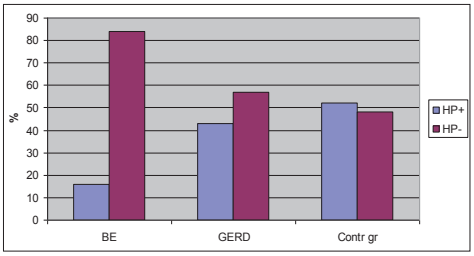

Figure 1. The prevalence of infection with H. pylori in patients with BE vs. patients with GERD

Typus of BE		HP+	HP-	Total
SSBE	N	7	32	39
	%	17.9	82.1	100.0
LSBE	N	1	10	11
	%	9.1	90.9	100.0
Total	**N**	**8**	**42**	**50**
	%	**16.0**	**84.0**	**100.0**
Fisher Exact Test		P=0.665		

Table 2. Presence of infection with H. pylori by endoscopic type BE

4. DISCUSSION

The management of GERD and BE remains a challenging problem and this is partly due to a limited knowledge of its natural history. The relation-

ship between GERD, BE and *H. pylori* is very complex (1). There might also be connection between prolonged proton pump inhibition and the rate of progression to atrophic gastritis, leading to hypochlorhydria (12, 13, 14).

H. pylori, in contrary to overweight and hiatal hernia, may interact with the risk of BE rather in physiological aspect, than anatomically. *H. pylori* can reduce the risk for BE by possible reduction of acidity in the stomach by the action of urease. The fact that *H. pylori* may protect against BE is contrary to the established status of risk factors for peptic ulcer and gastritis.

H. pylori infection was present in 16.0% of patients in BE group, comparing to 42.9% of patients in the group with GERD, and to 52.0% of cases in the control group.

Results from one study (28) showed low prevalence of *H. pylori* infection in patients with BE (12%). Data from the literature also showed low prevalence of *H. pylori* infection in these patients. In the same study, of 251 patients who underwent endoscopy, cagA + *H. pylori* was present in 44% of examinations, 36% of 36 patients with GERD. 20% of 10 patients with SSBE, and in 0% of 18 patients with LSBE. A limitation in our study was lacking of the laboratory method for determination of cagA + types of *H. pylori*.

H. pylori infection has also been implicated in the pathogenesis of GERD.

H. pylori infection may be associated with increased acid secretion, but in contrast with achlorhydria resulting in atrophic gastritis, depending on the bacterial species and the inflammatory response that causes it. Studies showing that *H. pylori* negative patients have more severe esophagitis compared with H. pylori positive, suggesting that this bacterium may have a protective role in patients with GERD. In fact, infection with *H. Pylori* can induce atrophy and thus reduction of acidic secretion, which ultimately results in reduced risk of developing GERD. In contrast, the eradication of *H. pylori* infection may result in normal acid production and exacerbation of GERD. However, recent clinical studies can not provide strong enough evidence for a possible role of *H. pylori* infection in the development of GERD and erosive esophagitis. In clinical practice, since *H. Pylori* infection is associated with an increased risk of peptic ulcer and gastric cancer, existing guidelines recommend its eradication, regardless of the potential effect on GERD (28, 29).

H pylori, in particular the *CagA* phenotype, through gastritis and associated hypochlorhydria might be a protective factor against GERD and its complications (30). In recent years it has become clear that a significant number of patients will develop reflux oesophagitis after apparently successful eradication (30).

The findings are consistent with the hypothesis that the declining infection rates of *H. pylori* in the general population have led to a rise in the occurrence of GERD and associated oesophageal adenocarcinoma [28]. The prevalence of CagA phenotype was also lower in patients with complicated GERD (such as BE), than in the rest of population (31).

5. CONCLUSION

* The prevalence of *H. pylori* infection in patients with BE was lower in comparison with patients with GERD and with control group ($p < 0.01$).

* The prevalence of *H. pylori* infection in patients with BE, especially those with LSBE was very low, which indicates the possible protective role of this microorganism.

H. pylori infection was present in 17.9% of patients with SSBE and in 9.1% of patients with LSBE, P = 0665).

CONFLICT OF INTEREST: NONE DECLARED

REFERENCES

1. Blaser MJ. Ecology of Helicobacter pylori in the human stomach. J Clin Invest. 1997; 100(4): 759-762.
2. Kuipers EJ. Helicobacter pylori and the risk and management of associated diseases: gastritis, ulcer disease, atrophic gastritis and gastric cancer. Aliment Pharmacol Ther. 1997; 11 Suppll: 7l-88.
3. Dunn BE, Cohen H, Blaser MJ. Helicobacter pylori. Clin Microbiol Rev. 1997; 10(4): 720-741.
4. Blaser MJ. Intrastrain differences in Helicobacter pylori: a key question in mucosal damage? Ann Med. 1995; 27(5): 559-563.
5. Atherton Je. The clinical relevance of strain types of Helicobacter pylori. Gut. 1997; 40(6): 701-703.
6. van Doorn LJ, Figueiredo C, Sanna R, Plaisier A, Schneeberger P, De Boer W. et al. Clinical relevance of the cagA, vacA, and iceA status of Helicobacter pylori. Gastroenterology. 1998; 115(1): 58-66.
7. Kuipers EJ, Perez P, Meuwissen SGM, Blaser MJ. et al. Helicobacter pylori and atrophic gastritis: importance of the cag A status. J Nat Cancer Inst. 1995; 87(23): 1777-1780.
8. Calam J, Gibbons A, Healey ZV, Bliss P Arebi N. How does Helicobacterpylori cause mucosal damage? Its effect on acid and gastrin physiology. Gastroenterology. 1997; 113(6 Suppl): S43-49.
9. Moss SF, Calam J. Acid secretion and sensitivity to gastrin in patients with duodenal ulcer: effect of eradication of Helicobacterpylori. Gut. 1993; 34(7): 888-892.
10. El-Omar E, Penman 1, Darrison CA, Ardhill JS, McColl KEL. Eradicating Helicobacter pylori infection lowers gastrin mediated acid secretion by two thirds in patients with duodenal ulcer. Gut. 1993; 34(8): 1060-1065.
11. Beales IL. H pylori-associated hypochlorhydria [letter]. Gastroenterology. 1998; 114(3): 618-621.
12. Werdmuller BF, Loffeld RJLF. Helicobacterpylori infection has no role in the pathogenesis of reflux esophagitis. Dig Dis Sci. 1997; 42(1): 103-105.
13. Vicari JJ, Peek RM, Falk GW, Goldblum JR, Easley KA, Schnell J. et al. The seroprevalence of cagA-positive Helicobacter pylori strains in the spectrum of gastroesophageal reflux disease. Gastroenterology. 1998; 115(1): 50-57.
14. Barrett NR. The lower esophagus lined by columnar epithelium. Surgery. 1957; 41: 881-894.
15. Spechler S, Goyal R. The columnar-lined esophagus, intestinal metaplasia, and Norman Barrett. Gastroenterology. 1996; 110: 614-621.
16. Silberg DG, Sullivan J, Kang E. et al. Cdx2 ectopic expression induces gastric intestinal metaplasia in transgenic mice. Gastroenterology. 2002; 122: 689-696.
17. Cameron AJ. Epidemiology of columnar-lined esophagus and adenocarcinoma. Gastroenterol Clin North Am. 1997; 26: 487-494.
18. Wong A, Fitzgerald RC. Epidemiologic risk factors for Barrett's esophagus and associated adenocarcinoma. Clin Gastroenterol Hepatol. 2005; 3: 1-10.
19. Spechler SJ. Barrett's esophagus. N Engl J Med. 2002; 346: 836-842.
20. Rex DK, Cummings OW, Shaw M. et al. Screening for Barrett's esophagus in colonoscopy patients with and without heartburn. Gastroenterology. 2003; 125: 1670-1677.
21. Rastogi A, Puli S, El-Serag HB, et al. Incidence of esophageal adenocarcinoma in patients with Barrett's esophagus and high-grade dysplasia: a meta-analysis. Gastrointest Endosc. 2008; 67: 394-398.
22. O'Connor JB, Falk GW, Richter JE. The incidence of adenocarcinoma and dysplasia in Barrett's esophagus: report on the Cleveland Clinic Barrett's Esophagus Registry. Am J Gastroenterol. 1999; 94: 2037-2042.
23. Van Soest EM, Dieleman JP, Siersema PD, Sturkenboom MC, Kuipers EJ. Increasing incidence of Barrett's oesophagus in the general population. Gut. 2005; 54: 1062-1066.
24. Cameron AJ, Lomboy CT. Barrett's esophagus: age, prevalence, and extent of columnar epithelium. Gastroenterology. 1992; 103: 1241-1245.
25. Spechler S, Goyal R. The columnar-lined esophagus, intestinal metaplasia, and Norman Barrett. Gastroenterology. 1996; 110: 614-621.
26. Spechler SJ. Barrett's esophagus. N Engl J Med. 2002; 346: 836-842.
27. Spechler SJ. Intestinal metaplasia at the gastroesophageal junction. Gastroenterology. 2004; 126: 567-575.
28. Sharma P, Vakil N. Review article: Helicobacter pylori and reflux disease. Aliment Pharmacol Ther. 2003; 17: 297-305.
29. Vaezi MF, Falk GW, Peek RM, Vicari JJ, Goldblum JR, et al. CagApositive strains of Helicobacter pylori may protect against Barrett's esophagus. Am J Gastroenterol. 2000; 95: 2206-2211.
30. Labenz J, Blum AL, Bayerdorfer E, Meining A, Stolte M, Borsch G. Curing Helicobacter pylori infection in patients with duodenal ulcer may provoke reflux esophagitis. Gastroenterology. 1997; 112(5): 1442-1447.
31. Vicari JJ, Peek RM, Falk GW, Goldblum JR, Easley KA, Schnell J, et al. The seroprevalence of cagA-positive Helicobacter pylori strains in the spectrum of gastroesophageal reflux disease. Gastroenterology. 1998; 115(1): 5.