European Journal of Internal Medicine 21 (2010) 306–309

Contents lists available at ScienceDirect

European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Original article

Helicobacter pylori is a major public health priority in western Balkans: An endoscopy referral center experience

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ARTICLE INFO

Article history:
Received 24 March 2010
Received in revised form 6 April 2010
Accepted 13 April 2010
Available online 4 May 2010

Keywords:
Helicobacter pylori
Prevalence
Balkans
Greece
Albania
Endoscopy

ABSTRACT

Background: Helicobacter pylori infection is a highly prevalent community infection. The prevalence of *H. pylori* infection has been reported to vary worldwide by geographical area and by social and economic conditions.
Aim: To investigate possible differences regarding the prevalence of *H. pylori* infection and related gastritis in Greek and Albanian patients undergoing routine endoscopy.
Materials and methods: Single referral endoscopy center retrospective analysis for the period of 2005–2008. For each of the first 101 consecutive Albanian patients, one age and sex matched Greek patient was included. No patient was previously treated for *H. pylori*. Endoscopic and pathology findings were recorded for *H. pylori* infection and the presence of active gastritis.
Results: In total 101 Albanians and 101 Greek patients were analyzed. A significantly higher prevalence of *H. pylori* in Albanians compared to Greeks was observed (54% vs 34%, $p = 0.005$, OR 2.3, 95%CI 1.3–4.0). There were no differences in *H. pylori* prevalence among sex or age groups. Active gastritis was significantly more frequent in Albanians compared to Greeks (48% vs 32%, $p = 0.02$, OR 2.0, 95%CI 1.3–2.6).
Conclusion: This is the first attempt in western Balkans to demonstrate by routine gastroscopy and biopsy that there is a significantly higher prevalence of *H. pylori* and active gastritis in Albanians as compared to Greeks.

1. Introduction

Helicobacter pylori (*H. pylori*) infection is a major public health problem and remains an important and highly prevalent community infection. *H. pylori* infection is usually acquired in early childhood and possibly family members are the main source of infection while the prevalence of *H. pylori* infection is significantly higher among families of infected index children [1].

The prevalence of *H. pylori* infection has been reported to vary worldwide and by geographical area. Low and high prevalence areas have been recognized for *H. pylori*. High endemic areas are represented by developing countries while in the developed countries the prevalence of *H. pylori* infection is lower [2]. However, there is emerging data suggesting that the prevalence of *H. pylori* infection is also diminishing by time in developing countries especially in patients from the medium and upper socioeconomic strata [3]. An influence of social and economic conditions on the frequency of *H. pylori* infection has been also suggested in children [4].

In 1991, a serious political and socioeconomic crisis in Albania caused a massive migration of immigrants to northwestern Greece and to the Apulia region of southern Italy. Northwest Greece represents an area of an intermediate prevalence of *H. pylori* infection [5,6]. During the last fifteen years northwestern Greece that is bordering to southern Albania has received a larger number of Albanian immigrants, mainly belonging to young age groups with a previously reported *H. pylori* prevalence up to 80%. [7].

We aimed to investigate differences regarding the prevalence of *H. pylori* infection and related gastritis in Greek and Albanian patients undergoing routine endoscopy in a single referral center in Northwestern Greece.

2. Materials and methods

2.1. Retrospective single referral center study

Our Department is a referral center for Hepatology and Gastroenterology in northwestern Greece and is offering endoscopy facilities and treatment in Albanian patients on hospital and outpatient clinic basis.

A retrospective analysis of our records of upper gastrointestinal tract endoscopies was performed for the period of 2005–2008.

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0953-6205/$ – see front matter
doi:10.1016/j.ejim.2010.04.004

2.2. The Greek and the Albanian cohort

No patient was previously treated for *H. pylori*. The Greek and the Albanian cohort of patients were matched for age and sex with the following procedure.

We initially identified the first 101 Albanian patients and then for each Albanian patient we matched the first subsequent Greek patient of the same sex and age (±5 years).

2.3. Endoscopy protocol and biopsy testing

The indication of endoscopy was symptom based and all endoscopic findings were recorded. Gastric biopsies from all patients were obtained during upper gastrointestinal endoscopy in a 4-year period. Two biopsies from antrum and corpus were histologically assessed.

H. pylori testing in biopsies is routinely performed in the pathology department of our hospital. All sections are stained with haematoxylin and eosin for histopathological details and Giemsa stain for the presence of *H. pylori*. All biopsy reports from the corresponding endoscopies were collected and were coded according to *H. pylori* status (positive–negative) and also according to the pathology conclusion related to the basic type of gastritis (active or non-active) or other important pathology findings.

2.4. Ethical considerations

All participants gave informed consent during endoscopy and every procedure was according to the rules of good clinical practice. All patients with *H. pylori* positive infection were subsequently treated and followed up accordingly.

2.5. Statistical analysis

Percentages were calculated for binary and categorical variables while continuous variables were described with median and interquartile range (IQR). For each binary outcome, odds ratios were calculated with 95% confidence intervals. Comparison between groups was performed using chi-square and Fisher's exact test for binary variables and Kruskal–Wallis for categorical variables. A two tailed p value <0.05 was considered to be significant and for calculations we used the SPSS 13.0 (SPSS Inc., Chicago, IL) and StatXact 3.0.

3. Results

In total 101 Albanians and 101 age and sex matched Greek patients were analyzed. The demographic, endoscopic and histologic characteristics of the Greek and the Albanian cohort of patients are presented in Table 1.

3.1. Prevalence of H. pylori

H. pylori testing showed a significantly higher prevalence in the Albanian compared to the Greek cohort (54% vs 34%, $p=0.005$, OR 2.3 95% CI 1.3–4.0) (Fig. 1). There were no differences in *H. pylori* prevalence among sex or age groups.

Table 1
Overview of the Albanian and age–sex matched Greek cohort with endoscopy biopsies for *Helicobacter pylori*.

Parameter	Greek cohort ($n=101$)	Albanian cohort ($n=101$)	p value OR (95%CI)
Male/female	60/41	60/41	NS
Age in years (median, IQR)	49 (36, 58)	43 (33.5, 54)	NS
H. pylori (+)/*H. pylori* (−)	34 (33.7%)/67	54 (53.5%)/47	0.005 2.3 (1.3–4.0)
Male/female *H. pylori* (+)	20 (33.3)/14	35 (58.3%)/19	NS
Active/non-active gastritis	32 (31.7%)/69	46 (48.4%)/49	0.02 2.0 (1.3–2.6)

3.2. H. pylori related gastric pathology

Active gastritis in biopsies of the Albanians was significantly more frequent compared to Greeks (46% vs 32%, $p=0.02$, OR 2.0, 95%CI 1.3–2.6) (Fig. 2). The odds for an *H. pylori* positive test were 4-folds higher in patients with active gastritis than in patients without active gastritis (OR 4.0, 95% CI 2.2–7.3) (Fig. 3). There were no differences in active gastritis among sex or different age groups. Two patients (one Greek and one Albanian) were diagnosed with acute erosive gastritis.

Besides those patients with gastritis, two *H. pylori* positive Albanians were diagnosed with adenocarcinoma and one with non-Hodgkin lymphoma. None of the Greek patients was diagnosed with malignancy.

4. Discussion

Our study was the first attempt to compare pathology findings after endoscopy between Albanian and Greek patients in a referral center in Northwestern Greece. Our results suggested that Albanians who had an endoscopy had a higher *H. pylori* prevalence than the Greek age and sex matched individuals. Active gastritis was also significantly higher in Albanians as compared to Greek patients. An *H. pylori* positive test in biopsy was associated with the presence of active gastritis.

The proportion of *H. pylori* positive test was in accordance with the one that was reported in previous studies. Specifically, the prevalence of *H. pylori* infection in Greece has been reported to vary from 27% in Navy recruits [8] and 44% in children [1] to 70% in blood donors [9]. A study evaluating changes in *H. pylori* infection prevalence in Greece during a ten-year period showed a significant decrease of *H. pylori* infection in Greece [10]. According to previous unpublished data from our Department the prevalence of *H. pylori* in northwestern Greek population as assessed by rapid urease detection tests was 48% and there was no difference between sexes [5,6].

H. pylori infection is highly prevalent among Albanian population. The seroprevalence of *H. pylori* infection in Albanian healthy volunteers was 70% and increased by age, from 60% in individuals younger than 20 years to 81% among those of more than 50 years with a significant trend of increase by age [11]. In Albanian immigrants to southern Italy, the seroprevalence of *H. pylori* infection was 78% [12] and another study in unselected Albanian individuals demonstrated a 70% *H. pylori* prevalence irrespective of age [7]. Our results showed a lower prevalence for *H. pylori* in Albanian patients. This may be

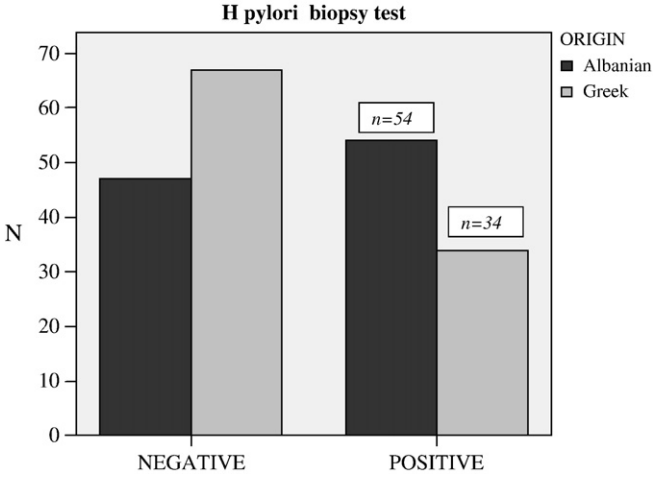

Fig. 1. Results of the *Helicobacter pylori* testing in the Greek and the Albanian cohort ($p=0.005$).