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ORIGINAL ARTICLE

# Cigarette smoking status and *Helicobacter pylori* infection in non-ulcer dyspepsia patients



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## KEYWORDS

Non-ulcer dyspepsia;  
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**Abstract** *Background and objective:* There is strong, if not conclusive, evidence that *Helicobacter pylori* plays a role in duodenal ulcer disease, gastric ulcer disease, and gastric adenocarcinoma. The potential association with nonulcer dyspepsia, however, still remains unclear despite the large number of studies that have attempted to elucidate it, smoking has been found to be related to a higher incidence of *H. pylori* in non-ulcer dyspepsia patients. Therefore we aimed to find out the incidence of *H. pylori* infection in our group of non-ulcer dyspepsia patients and to study the relationship between smoking status of the patients and *H. pylori* positivity in them.

*Patient and methods:* All patients presenting with dyspepsia in whom upper gastro-intestinal endoscopy had ruled out acute or chronic peptic ulceration, esophagitis, gastric cancer, and other structural and metabolic causes were taken as patients of non-ulcer dyspepsia. Urea breath test was used for all patients. The history was reviewed; especially their smoking statuses were recorded.

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**Conclusion:** In our study we found that the prevalence of *H. pylori* positivity was 43% and there was no statistically significant difference between smokers, non-smokers and ex smokers in the positivity rate of *H. pylori* in NUD patients.

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## Introduction

Dyspepsia is defined as any pain, discomfort or nausea referable to the upper alimentary tract, which may be intermittent or continuous and has been present for at least month [1]. Dyspepsia is a very common clinical problem accounting for two to three percent of primary care consultations and some 30–50 percent of cases of chronic upper abdominal complaints presented to the gastroenterologist [2]. A large proportion of these patients do not have recognizable organic disease and are commonly labeled as having functional dyspepsia. Although upper gastrointestinal endoscopy is the investigation of choice for the distinction between organic and functional dyspepsia, one must take into account that the percentage of relevant organic disease found by this invasive technique is in the range of 15–25 percent, whereby the lower limit refers to patients of the primary care setting [3,4].

Dyspepsia affects 20–40 percent of the population of the Western world [5–8]. Upper gastrointestinal endoscopy of patients with dyspepsia reveals no abnormality in the majority; such patients are considered to have non ulcer, or functional, dyspepsia [9]. The cause of nonulcer dyspepsia is unclear but is thought to be heterogeneous [10–12]. The recognition of the pathogenic role of *Helicobacter pylori* infection in patients with peptic ulcer and the benefits of eradicating the infection [13–15] have led to suggestions that the infection may also be the cause of dyspepsia in some patients with nonulcer dyspepsia. A higher prevalence of *H. pylori* infection has been reported in patients with dyspepsia than in those without it, but in some of these studies the patients were not matched for age or excluded if they had underlying ulcer disease [16–18].

Several studies have examined the effect of eradicating *H. pylori* infection on dyspeptic symptoms in patients with nonulcer dyspepsia, but the results have been conflicting and all such studies have been criticized because of design flaws [19]. In a recent review of these trials, Talley and Hunt concluded that “*H. pylori* has not been established, as yet, to play a definitive role in dyspepsia” [19].

Finally, Non-ulcer dyspepsia is one of the most frequent diagnosis made in patients who present with chronic dyspepsia. The pathogenesis remains poorly understood and little information on potential risk factors for this condition is available.

As has been previously reported by Rajashekhar et al. [20], both *H. pylori* infection and smoking are risk factors for acid peptic disorders. There is paucity of data on the relationship between smoking and *H. pylori* infection.

This study was carried out to find the incidence of *H. pylori* infection in patients presenting with non ulcer dyspepsia. Also, its relationship to the smoking status of the patients was studied.

## Subjects and methods

We studied patients who presented with dyspepsia and requested for proved or excluded *H. pylori* infection using non invasive urea breath test because they had dyspepsia for at least 4 months. All patients had no endoscopic evidence of current or previous peptic ulcer disease. Dyspepsia was defined as intermittent or persistent pain or discomfort in the upper abdomen or lower part of the chest, heartburn, nausea, a feeling of postprandial fullness, or any other symptoms thought to be related to the upper gastrointestinal tract [21]. Patients were excluded if they had previously been found to have peptic ulcer disease, had endoscopic evidence of esophagitis, history or evidence of ischemic heart diseases, gallbladder diseases, were taking nonsteroidal anti-inflammatory drugs (other than low-dose aspirin), had undergone gastric resection, were pregnant, or had previously been treated for *H. pylori* infection.

At this visit, a standardized interview was used to determine each patient’s symptoms and smoking history.

After the interview and clinical assessment, the patients underwent a carbon-14 urea breath test to determine their *H. pylori* status [22], where patients swallow urea labeled with an uncommon isotope, radioactive carbon-14. In the subsequent 10–30 min, the detection of isotope-labeled carbon dioxide in exhaled breath indicates that the urea was split; this indicates that urease (the enzyme that *H. pylori* uses to metabolize urea) is present in the stomach, and hence that *H. pylori* bacteria are present.

The results of the test were considered positive if the value at 20 min was more than 30 (units equal the percentage of the dose administered per millimole of carbon dioxide expired times the body weight in kilograms times).

This study was conducted at Alborg laboratories Almadinah almunawwarah branch, Saudi Arabia, one hundred consecutive patients fulfilling criteria of non-ulcer dyspepsia searching for *H. pylori* attending Alborg lab were taken in this study.

## Data collection

All the NUD patients who fulfilled the inclusion criteria underwent detailed history taking, including demographic data, result of urea breath test and the smoking history of their lifetime were analyzed by (SPSS version 17).

## Results

Patients referred by their physician to the Alborg lab searching for *H. pylori* were enrolled into our non ulcer dyspepsia study if they met the our study criteria.

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