

# ***Helicobacter pylori* infection in patients undergoing upper endoscopy at University Hospital in Uberaba, Minas Gerais, Brazil.**

**Infecção por *Helicobacter pylori* em pacientes submetidos à endoscopia digestiva alta em um hospital universitário de Uberaba, Minas Gerais, Brasil.**

**Fernanda Machado Fonseca<sup>1</sup>  
Renata Margarida Etchebehere<sup>1</sup>  
Adriana Gonçalves Oliveira<sup>1</sup>**

## **Abstract**

*Helicobacter pylori* is a Gram negative bacterium that cause chronic gastritis, duodenal ulcers and can predispose the gastric cancer. The study aimed to determinate the prevalence of *H. pylori* infection by different methods of diagnosis in patients submitted to endoscopy. Of the 145 patients included in the study, were collected fragments of gastric mucosa for histological analysis, and for the rapid urease test. The breath test was also performed. The *H. pylori* infection was detected in 84 (57.9%) patients by histological study, the rapid test of urease was positive in 81 (55,8%) and the breath test in 62 (56,3%). There was no statistically significant difference when comparing the prevalence of infection by different methods of diagnosis. The prevalence of *H. pylori* infection in our community was lower than that found in the literature for patients with age similar to this study (mean = 53.19 years).

**Keywords:** *Helicobacter pylori* prevalence, breath test, preformed urease test, methods of diagnosis.

**Descritores:** *Helicobacter pylori*, teste respiratório, urease pré-formada, métodos de diagnóstico.

## **Resumo**

*Helicobacter pylori* é uma bactéria gram negativa que causa gastrite crônica, úlceras duodenais e pode predispor ao câncer gástrico. O objetivo deste estudo foi determinar a prevalência da infecção por *H. pylori* por diferentes métodos de diagnóstico em pacientes submetidos à endoscopia. Dos 145 pacientes incluídos no estudo, foram coletados fragmentos da mucosa gástrica para estudo histopatológico e para a realização do teste da urease pré formada. O teste respiratório também foi realizado. A infecção pelo *H. pylori* foi detectada em 84 (57,9%) dos pacientes pela análise histológica, o teste rápido da urease foi positivo em 81 (55,8%) e o teste respiratório em 62 (56,3%). Não houve diferença estatística significante quando comparamos a prevalência da infecção pelos diferentes métodos de diagnóstico. A prevalência encontrada da infecção pelo *H. pylori* em nossa comunidade foi menor do que a encontrada na literatura em pacientes com a mesma faixa etária (média = 53,19 anos).

---

<sup>1</sup> Universidade Federal do Triângulo Mineiro

Para correspondência:  
Fernanda Machado Fonseca  
email: machadofmf@hotmail.com

Data da Submissão: 04/02/2013  
Data do Aceite: 11/04/2013

www.jmphe.com  
J Manag Prim Health Care 2013; 4(1):33-35.

## Introduction

*Helicobacter pylori* is considered as the main cause of chronic gastritis throughout the world. A small percentage of *H. pylori* infected individuals will develop severe diseases such as peptic ulcer, gastric carcinoma, or mucosa-associated lymphoid tissue (MALT) lymphoma<sup>1,2</sup>. In Brazil, some studies have demonstrated differences in prevalence of *H. pylori* infection according to the population evaluated<sup>2,3</sup>.

The aim of this study was to determine the prevalence of *H. pylori* infection using different methods of diagnosis in patients undergoing upper endoscopy at university hospital of the Universidade Federal do Triângulo Mineiro, in Uberaba, Minas Gerais, Brazil.

## Methods

The study was approved by the Ethics Committee of the Universidade Federal do Triângulo Mineiro (UFTM), Uberaba, Minas Gerais (MG), Brazil and was carried out in accordance with the Declaration of Helsinki. All patients signed the informed consent term and answered a questionnaire to obtain socio-demographic data. The clinical information was obtained by reviewing medical records of the patients.

From July 2007 to May 2011, gastric biopsy specimens were obtained from 145 subjects who underwent upper gastrointestinal endoscopy at Endoscopic Service of Universidade Federal do Triângulo Mineiro (UFTM) for evaluation of dyspeptic symptoms. Biopsy specimens were collected from the body and antrum for histopathological study. The gastric fragments were stained by Wartin Starry method for *Helicobacter* detection<sup>4</sup>. Another fragment of the antral mucosa was obtained for preformed urease test. The <sup>13</sup>C-urea breath test was performed with a non-dispersive infrared spectrometer (NDIRIS, Wagner Analysen

Technik, Bremen, Germany). A change of >4.0d in <sup>13</sup>C-value over baseline was considered as *H. pylori*-positive<sup>5</sup>. The exclusion criteria considered were pregnancy, presence of coagulation disorders, complications such as perforation or gastric bleeding, anatomical impediment to endoscopy, esophageal varices, and concomitant severe illness.

## Results

The age of patients ranged of 21 to 84 years, average of 53.19 and standard deviation (SD) of  $\pm 15.4$  years. Ninety-three (64.1%) patients were females and 52 (35.9%) males. According to histological analysis, *H. pylori* infection was detected in 84 (57.9%) patients. The rapid test of urease was positive for 81 (55.8%) patients. The <sup>13</sup>C-urea breath test was performed in 110 of 145 patients and the results was positive for 62 (56.3%) (Table I). There was no statistically significant difference when comparing the prevalence of infection by the different methods of diagnosis used in the present study. All patients *H. pylori* positive for histology were also positive for urease or breath test.

## Discussion and Conclusions

Epidemiological studies in the state of Minas Gerais found a prevalence of *H. pylori* infection in 82% of adult patients from the rural area, 69.7% in adults and children in rural areas of the state and 67% to 69% of adults in urban areas<sup>1,2,3,5</sup>. We expected a higher prevalence of *H. pylori* infection than that observed in the present study (57.9%) especially if considering that the population evaluated was composed of patients with a level of socio-economic predominantly lower, older and generally came from rural areas. However, despite the low socio economic level, the patients reported having access to basic conditions of hygiene. Additionally, the frequent use of

Patients	Histology	Urease test	<sup>13</sup> C-urea breath test
<i>H. pylori</i> positive	84 (57,9%)	81 (55,8%)	62 (56,3%)
<i>H. pylori</i> negative	61 (42,1%)	64 (44,2%)	48 (43,7%)
Total	145 (100%)	145 (100%)	110 (100%)

Table I. Detection of *Helicobacter pylori* infection by different diagnosis methods in patients submitted to upper endoscopy at hospital of UFTM, Uberaba, Minas Gerais

proton pump inhibitor by the majority of patients could be favored the elimination of the microorganism<sup>6</sup>. The use of these drugs can favor the *H. pylori* elimination or decrease of amount of bacterium in stomach, especially in the antrum hindering the histopathologic detection of bacterium in gastric biopsies<sup>7</sup>. Probably, other factor that could be contributed to our result is the frequent monitoring of patients included by medical staff and access to basic conditions of health and hygiene in our community. In conclusion, the prevalence of *H. pylori* infection was lower than that found in the Minas Gerais state for patients with age and level of socio-economic similar.

#### Acknowledgements

We are grateful to medical staff of the Service of Endoscopy at UFTM by their support and by biopsies gastric specimens collected for this study.

#### References

1. C LGV, Das SS, Karim QN. *Campylobacter pyloridis* in the upper gastrointestinal tract: a Brazilian study. *Arq Gastroenterol* 1987; 24:5-9.
2. Oliveira AMR, Rocha GA, Queiroz DMM, Barbosa MT, Silva SC. Prevalence of *Helicobacter pylori* infection in a population from the rural area of the state of Minas Gerais Brazil. *Rev Microbiol* 1999; 30: 59-61.
3. Fonseca FM, Queiroz DMM, Rocha AMC, Prata A, Crema E, Rodrigues-Junior V, Ramirez LE, Oliveira AG. Seroprevalence of *Helicobacter pylori* infection in chagasic and non-chagasic patients from the same geographical region of Brazil. *Rev. Soc. Bras. Med. Trop* 2012; 45: 194-8.
4. Dixon MF, Genta RM, Yardley JH, Correa P, 1996. Classification and grading of gastritis. The updated Sydney System. International Workshop on the Histopathology of Gastritis, Houston. *Am J Surg Pathol* 1994; 20: 1161-81.
5. Rocha GA, Rocha AMC, Silva LD, Santos A, Bocewicz ACD, Queiroz RM, Bethony J, Gazzinelli A, Corrêa-Oliveira R, Queiroz DMM. Transmission of *Helicobacter pylori* infection in families of preschool-aged children from Minas Gerais, Brazil. *Trop Med Internat Health* 2003; 8: 987-91.
6. Lind T, Megraud F, Unge P, Bayerdorffer E, O'Morain C, Spiller R, Van ZSV, Bardhan KD, Hellblom M, Wrangstadh M, Zeijlon L, Cederberg C. The MACH2 Study: Role of omeprazole in eradication of *Helicobacter pylori* with 1-week triple therapies. *Gastroenterol* 1999; 116: 248-53.
7. Genta RM, Lash RH, *Helicobacter pylori*-negative gastritis: seek, yet ye shall not always find. *Am J Surg Pathol* 2010; 34: e25-34.