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Prevalence of Gastroduodenal Disease with *Helicobacter Pylori* in the Region of Tiaret, Algeria

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ABSTRACT

The objective of this work is to carry out a retrospective epidemiological study of *Helicobacter pylori* infection in the region of Tiaret, Algeria.

We have carried out a retrospective study of *Helicobacter pylori* infection in patients with gastroduodenal diseases, consulting a gastroenterologist in the region of Tiaret. The rate of *H. pylori* infection is 43.71%. Similarly, we observed a significant increase in the rate of *H. pylori* infection with age, with a peak rate of (24.66%) occurring in the 30-40 age group. This rate is significantly related to age, and gender had no effect on the prevalence of infection, which is mainly associated with gastritis (82.19%).

Keywords: Retrospective study, *Helicobacter pylori,* Gastritis

INTRODUCTION

The discovery of *H. pylori* in 1982 revolutionized the understanding of pathophysiology and the management of gastroduodenal disease and as such represents one of the most significant recent advances in microbiology [19].

H. pylori is found mainly in the stomach, both in the antrum and in the funds, and can be isolated from gastric fluid under normal acid conditions [22].

The highest prevalence is observed in developing countries such as Latin America and Africa, which appears as an index of socioeconomic level [21].

H. pylori infection is probably the most common infection worldwide and is estimated to affect about 40% of the world population and 20-90% of adult individuals are infected depending on the country, with infection being more common in disadvantaged, low socioeconomic settings (Joutei et al., 2010).

The prevalence observed today is the consequence of socioeconomic conditions and the environment [20].

According to a scientific study, *H. pylori,* a bacteria living in the gastric environment, affects more than 90% of the Algerian population [30]. Gastroenterology specialists are sounding the alarm bells because they believe this disease could become the disease of the century [16].

Our work is carried out within the framework of a prevalence of *H. pylori*-related gastroduodenal diseases in the Tiaret region of Algeria.

METHODS

Study population

In this study, the objective was to assess the prevalence of gastroduodenal disease with *H. pylori,* 260 patients consulting gastroenterologists in the Tiaret region, and to study their distribution according to implication or not of *H . pylori* in the disease, sex, age groups, and type of pathology related to this bacterium.

Type of study

This is a retrospective epidemiological study involving 260 patients with gastroduodenal disease (110 men and 146 women), ranging in age from 12 to 82 years. The study took place in Tiaret, from November 2014 to April 2015, and was conducted in gastroenterology practices.

Inclusion criteria

Our study is about the Patient:

- From the Tiaret region, Algeria
- Suffering from gastroduodenal diseases with *H. pylori* or not;
- Underwent a gastric biopsy

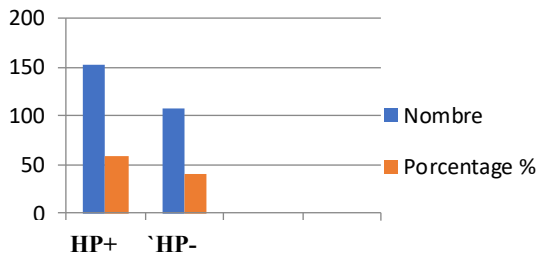
Statistical Analysis

Descriptive statistics, counts, and percentages were calculated using IBM SPSS Statistics Subscription Trial for Microsoft Windows 64-bit. IBM SPSS non-parametric one-sample Chi-square test ($p \leq 0.01$).

RESULTS

Involvement of *H. pylori* in gastroduodenal diseases

Among the 260 patients suffering from gastroduodenal diseases, we found 152 patients infected with *H. pylori*, giving an infection rate of 58.46%. The results are shown in the following histogram.



HP+: Infected with *H.pylori*

($\chi 2 = 6.24$. $p \leq 0.01$).

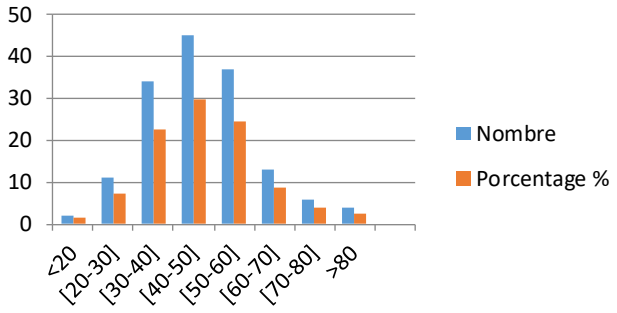
HP+: Infected with *H.pylori*

HP-: Not infected with *H.pylori*

Figure1. Percentage of patients infected or not with *Helicobacter pylori*

Distribution of *H. pylori* infection by gender

The incidence of *H. pylori* infection was slightly higher in females (64.47%) compared to males (35.53 %). However, this difference was not significant. The results of this study indicate that gender had no significant effect on the prevalence of *H. pylori* infection. Fig 2.



($\chi 2 = 8.57$. $p \leq 0.01$).

Figure 2. Distribution of *Helicobacter pylori* infection by sex of patients

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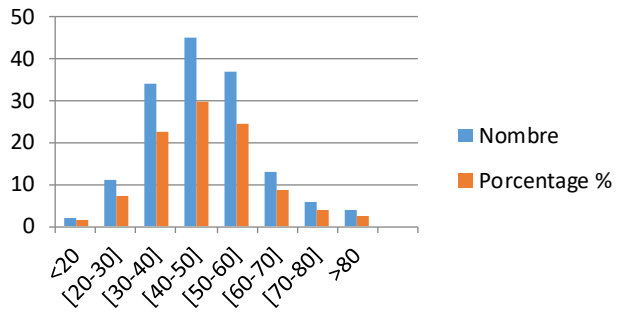
Distribution of *H. pylori* infection by age group

We observed a significant increase in the prevalence of H. pylori infection with age, with a peak rate (29.60%) occurring in the 40-50 age group. The results can be represented by a graph (Fig. 3) to make the results clearer and more readable.

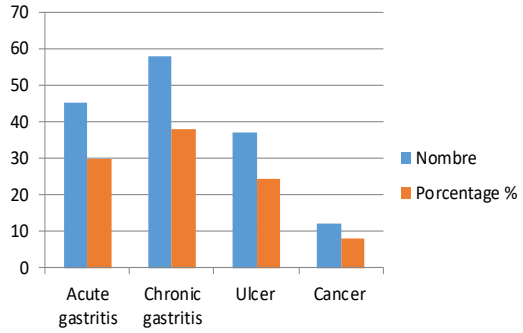


(χ2 = 9083. p ≤ 0.01)

Figure 3. Distribution of *H. pylori* infection according to patient age groups

Distribution of *H. pylori* infection according to type of pathology

These patients all present with gastric disorders at different levels of the stomach. Among 152 patients infected with *H. pylori*, (29.6%) of patients had acute gastritis, (38.15%) of patients developed chronic gastritis, (24.34%) of patients had an ulcer, and (7.89%) of patients suffering from cancer. To shed light on these results we have represented them in the form of a graphical area (Fig. 4).



(χ2 = 23.68. p ≤ 0.01)

Figure 4. Distribution of patients infected with *H. pylori* according to type of gastric pathology

DISCUSSION

The prevalence of *H. pylori* infection is between 20 and 40% in industrialized countries; it reaches 70 to 90% in developing countries [19]. Whereas in our study population, the prevalence rate is 58.46%, which corresponds more or less to half of the prevalence found in Algeria (78%).

H. pylori infection is higher in developing countries (78% in Algeria, 71% in Morocco, 69% in Côte d'Ivoire) [11].

Elmanama et al., [8] demonstrated that both sexes are equally affected by *H. pylori* infection, confirming the results of our series. However, other studies have noted a male predominance [21].

Furthermore, if we compare by age group, *H. pylori* are found in our series at a rate of 29.60% in patients between 40 and 50 years of age. This average is lower than the European figures, which are around 60 years [13], whereas, in other studies of Everhart, 2000, no significant difference has been reported for age groups, some studies have shown that contamination occurs early in childhood, and before the age of 10 years, more than 50% [15].

Ilboudo et al., [17] argue that in Africa, every individual taken in adulthood and whatever his socio-economic level has lived a childhood in an environment conducive to contamination because *H. pylori* is responsible for the development of several gastric pathologies. It is responsible for 80% of chronic atrophic gastritis [22]. As a result of the inflammatory and immunological response induced by this bacterium, 1 to 10% of peptic ulcers and 1 to 3% of gastric cancers result from it [3]. These results are consistent with those found in our study. Indeed, *H. pylori* are most often linked to gastritis with a rate of 67.75%. As well, the frequency of peptic ulcers in the population infected with *H. pylori* was 24.34% and it was 7.89% in the case of cancer.

Moroccan authors presume that *H. pylori* are indeed correlated most often with chronic atrophic gastritis with a prevalence of 95.56% [1]. It is now clearly established that *H. pylori* are responsible for gastric cancer and that no such cancer develops in the absence of this bacterium [6]. Nevertheless, the number of patients at risk of developing cancer is small compared to the size of the population infected with *H. pylori* [26], this is consistent with the results of our series where 7.89% of our population had developed cancer.

CONCLUSION

This study shows the very high prevalence of patients suffering from gastroduodenal diseases in the region of Tiaret, which reveals incriminating *Helicobacter pylori*. These results

also show that age, sex, and pathology are factors playing an important role in the prevalence.

CONFLICTS OF INTEREST

The author declares they have no conflicts of interest.

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