Gastroenterology, Hepatology & Digestive Disorders

Epidemiological, Clinical and Endoscopic Profile of *Helicobacter Pylori* Infection in Two Digestive Endoscopy Centers in Brazzaville

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ABSTRACT

Introduction: Helicobacter pylori (Hp) infection is a public health problem. The contamination is mainly in childhood, oro-oral or fecal-oral. The objective is to determine the epidemiological, clinical and endoscopic profile of Helicobacter pylori (Hp) infection in symptomatic patients in Brazzaville in order to improve the management of Hp-infected persons in Congo.

Patients and Method: This was a cross-sectional and analytical study, conducted from January to May 2018, in two digestive endoscopy centers in Brazzaville. Included were symptomatic patients referred for upper gastrointestinal endoscopy (HRE). The frequency of Helicobacter pylori infection was determined from two tests, the rapid urease test and the Hp antigen test in the stool. The risk factors for contamination, digestive symptoms and gastroduodenal diseases associated with Helicobacter pylori infection were studied.

Results: During the study, 137 consenting patients were included, including 62 men and 75 women; the sex ratio was 0.8. The average age was 46 years, the extreme 18 and 88 years. Epigastralgia was the most common reason for consultation. Upper digestive endoscopy was normal in most cases (43%), erosive and erythematous gastropathies were the most common lesions. There were 109 positive patients and 28 negative patients with a frequency of 79.6%. All age groups were affected. The infection predominated in young patients and in women in 81% of cases. It was associated with type of sanitation, gastrointestinal bleeding and peptic ulcer disease.

Keywords
Helicobacter pylori, Infection, Brazzaville.

Introduction

Helicobacter pylori (*Hp*) infection is a public health problem. It is the most common bacterial infection in the world, especially in developing countries [1,2]. The contamination is mainly in childhood, oro-oral or fecal-oral. Factors influencing incidence and prevalence are age, gender, geographical location, promiscuity, poor hygiene, low socioeconomic status [3,4]. *Hp* infection is implicated in multiple disorders of the gastric and duodenal mucosa, such as acute and chronic gastritis, gastric and / or duodenal ulcer, adenocarcinoma, and gastric MALT lymphoma [3-5]. Previous studies in Congo have focused on the frequency of childhood *Hp* infection and its resistance to antibiotics in adults

[6,7]. However, no studies on the risk factors and pathologies associated with this infection in adults have been documented to date. In order to improve the management of *Hp* infection, we conducted this study which aims to determine the epidemiological, clinical and endoscopic profile of *Hp* infection in Brazzaville.

Patients and Method

It was a cross-sectional and analytical study carried out over a period of 5 months in two digestive exploration centers in Brazzaville, namely the Gastroenterology Medical Center of OCH and the Medical-Social Center of the Schnell Foundation. . Included were symptomatic patients who required HRE, regardless of indication, whose age is greater than or equal to 18 years and who consented to the study. Patients who took a PPI and / or an antibiotic in the month prior to endoscopy were not included. The

technique used was consecutive sampling of patients meeting the inclusion criteria. Risk factors for contamination, such as age, gender, promiscuity, socio-economic status, lifestyle of patients were studied as well as digestive or extra-digestive symptoms and endoscopic lesions associated with HIV infection. *hp*. Promiscuity was assessed by the number of people living under the same roof. The socio-economic assessment section of the questionnaire was designed for three levels: low, medium and high.

The search for infection was based on two tests, including the rapid urease test "GOLD *Hp* dry ®" in the antral and fundic biopsies and the *Hp* antigen detection kit < <CerTest *Hp*® >> in the patient's fresh stool. The criterion for judging the presence of *Hp* in each patient was the positivity of at least one of the two tests. The data entry and analysis were done with the Excel version 2007 software, the comparison of means with the Student and Chi-square tests (X2) whose significance level was set at 5%.

Results
Epidemiological aspects
The data collection included 137 patients in the study including 62 men and 75 women, a sex ratio of 0.8. The extreme ages were 18 and 88 years, the mean age 46.1 ± 16.6 years. The majority of patients were aged less than or equal to 45 years, representing 54.7% of the study population. The distribution of patients by sex and age is shown in Figure 1.
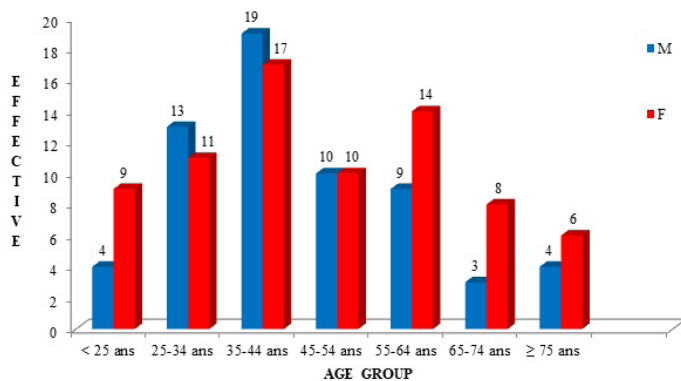

Figure 1: Distribution of patients by sex and age group.

The average household size of our patients was calculated at 5.7 people. However, almost half of the patients (46%) had a household size of between 6 and 10, or an average of 8 people per household, which is a significant percentage.

In terms of lifestyle, the majority of patients (58%) used tap water, followed by mineral water and well water. Other sources of water accounted for 3%, including filtered water, spring water and boiled water. 62 patients (45%) used latrines, whether rudimentary or managed.

All social classes were represented, the most common being the middle class. Table 1 shows the distribution of patients by household size, lifestyle and socio-economic status of patients.

VARIABLE		NUMBER	%
Household size	≤ 5	66	48
	[6-10]	63	46
	> 10	8	6
	Total	137	100
Water source	Tap	80	58
	Mineral water	38	28
	Well water	15	11
	Other*	4	3
	Total	137	100
Sanitary type	A flush	49	36
	Latrines	62	45
	Latrines and flush	26	19
	Total	137	100
Socio-economic level	Low	38	28
	Way	73	53
	High	26	19
	Total	137	100

Table 1: Distribution of patients by household size, lifestyle and socio-economic status.

Clinical aspects
Abdominal pain was the most frequent reason for consultation found in the majority of cases studied (83%), followed by dyspeptic disorders (38%), GERD (31%), vomiting (16%) and hemorrhage. digestive (13%). Other indications for HRE were anemia, ascites, hiccups, hypersialorrhea, and jaundice in 9% of cases.

Depending on the location and type of pain, patients with epigastralgia with a burn type predominated (58.8%).

Endoscopic aspects
Upper digestive endoscopy was normal in 43% of patients. Among the lesions found, the most frequent were gastropathies with a predominance for erosive gastropathies. Peptic ulcer disease was found in 11% of cases, peptic oesophagitis in 7% of cases and bulbar disease in 4% of cases. Figure 2 illustrates the distribution of patients according to endoscopy results.
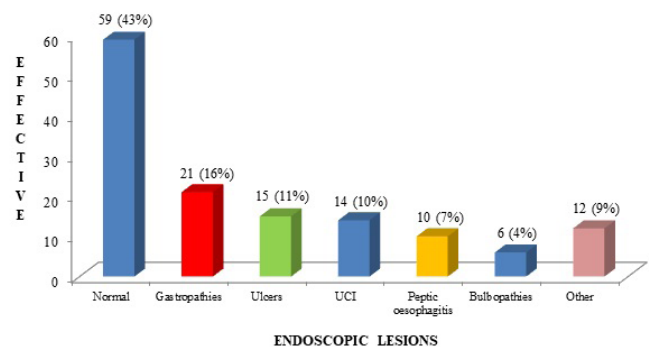

Figure 2: Patient distribution according to endoscopy results.

Other *: oesophageal candidiasis (5%), duodenal tumor (2%), bulb polyp (1%), fundus polyp (1%); Gastropathies: erosive (14%), congestive (2%); bulbopathies: congestive (1%), erosive (3%); UCI: Incontinence of

uncomplicated cardial.

Hp infection in the study population

Of the 137 patients tested for *Helicobacter pylori* infection, 109 were positive and 28 negative. The frequency of carriage of the infection was 79.6%. The average age of infected patients was 45.55 years and 48.21 years of uninfected patients.

Depending on the sex, the frequency of carriage of *Hp* infection was higher in women, 81% versus 77% in men. All age groups were affected, with a higher incidence in younger patients, particularly those aged 45 years and under, with a peak between 35 and 44 years of age. In both cases the difference was not significant.

Table 2 shows the distribution of positive and negative *Hp* infection patients by sex and age.

Study Population		N	Patients Positive *Hp*		Patients Negative *Hp*		P value
			n	%	n	%	
Sex	Men	62	48	77	14	23	0,572
	Women	75	61	81	14	19	
< 25 ans		13	13	12	–	–	
25-34 ans		24	20	18	4	14	
35-44 ans		36	25	23	11	39	
45-54 ans		20	17	15	3	12	0,451
55-64 ans		23	15	13	8	28	
65-74 ans		11	11	10	–	–	
≥75 ans		10	10	9	2	7	

Table 2: Distribution of positive and negative *Hp* patients by sex and age.

The frequency of *Hp* infection increased with the number of people living under the same roof. In fact, it was 88% in patients with a household size of more than 10 people, but without any significant difference. In terms of patients' lifestyles, the frequency of infestation was 84% in patients consuming tap water and 100% in those using both types of sanitation (p = 0.016). Patients with average socio-economic status had a higher incidence of *Hp* infection, 82% of the time, followed by those with a high socio-economic level (81%) and then low (74%), with no difference significant. Table 2 presents the distribution of *Hp* positive and negative patients by household size, lifestyle and socio-economic status.

Depending on the symptoms, the frequency of *Hp* infection was higher in patients with abdominal pain, followed by those who consulted for dyspepsia and those with GERD. However, the difference was significant only in patients with gastrointestinal bleeding (p = 0.024). We had a higher incidence of *Hp* infection in patients who had a normal endoscopy, 42%. Among the pathologies found, the frequency of infection was higher in cases of gastropathies in 15% of cases, with a predominance for erythematous gastropathies, followed by ulcers in 14% of cases. The difference was statistically significant between *Hp* infection and peptic ulcer disease (p = 0.041). Figure 3 illustrates the

distribution of positive and negative patients with *Hp* infection according to endoscopy results.

VARIABLE		Positive (N=109)		Negative (N=28)		P value
		n	%	n	%	
Household size	≤ 5	51	77	15	23	
	[6-10]	51	81	12	19	0,786
	> 10	7	88	1	12	
Water source	Tap	67	84	13	16	
	Mineral water	27	71	11	29	0,458
	Well water	12	80	3	20	
	Other*	3	75	1	25	
Sanitary type	A flush	37	76	12	24	
	Latrines	46	74	16	26	0,016
	Latrines and flush	26	100	—	—	
Socio-economic level	Low	28	74	10	26	
	Way	60	82	13	18	0,565
	High	21	81	5	19	

Table 3: Distribution of positive and negative *Hp* patients by household size, lifestyle and socioeconomic level.
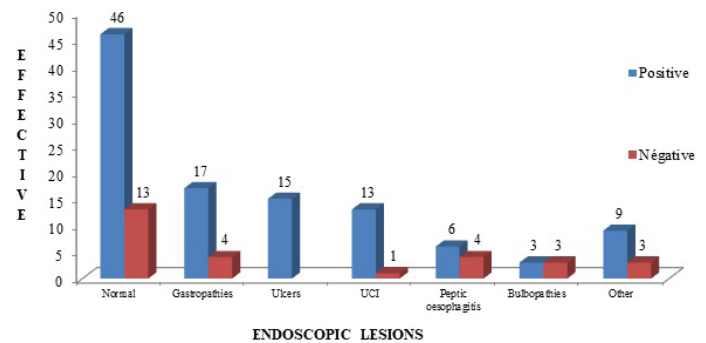

Figure 3: Distribution of Positive and Negative *Hp* Patients by Endoscopy Results.

Discussion

In order to reach the sample size within the given time, we decided to carry out our investigation in two digestive endoscopy centers in Brazzaville, the latter being easily accessible to a large number of patients. Indeed, one of the centers is located in a populated district of the capital and the other is close to the CHU. This choice is also justified by the fact that these are qualified and specialized structures in the practice of digestive endoscopy, having an appropriate technical platform, hospitals in the city being devoid of equipment.

The mode of recruitment of the patients made it possible to avoid a selection bias. This recruitment method seems reliable and has already been used in other studies [7,8]. To optimize the reliability of the results, we opted for the use of two *Hp* research tests, the pathological examination is not always available in our country. These means of diagnosis are traditional in some works, in particular they were used in a study on the diagnosis of *Hp*

infection in 2013 in Brazil [9] and in Morocco in 2014 [10].

The high percentage of people per household might reflect the notion of promiscuity in this study. Indeed, this result is higher than that given by the Demographic and Health Survey of Congo (DHS) which reports an average household size of 5.3 people in Brazzaville [11]. On the other hand, the lifestyle results of our patients corroborate the data of the DHS, which mentions that 50% of Congolese consume tap water and that more than two thirds of Congolese households (69%) only have latrines. [11]. The predominance of patients at the low and medium socio-economic level in consultation could be explained by the fact that these people often benefit from outside help enabling them to meet some of their needs.

Indications for endoscopy are as in other studies dominated by epigastralgia, dyspeptic disorders and GERD symptoms [12-14]. Epigastralgia was the most common reason for consultation in our study. Indeed these pains are indicative of many digestive disorders and are the first indication of achievement of HRE as reported by other works [14-17].

The gastroduodenal pathologies found in the study are almost the same as those reported in other African studies [13,14,17]. This is the case, for example, of Ankouane et al in Cameroon, in a study on the epidemiology of Hp infection in 2013, which found 79.5% of gastritis, 15.8% of duodenal ulcer and 11.1% peptic oesophagitis. In contrast, the examination was normal in only 7.6% of patients in their study [8].

The high frequency of Hp infection in the study may be related to hygienic conditions. This result is comparable to that obtained in other developing countries [18,19] and corroborates data from the literature [3,20-22].

In Africa, Hp infection is contracted early in childhood and gradually increases with age [1]. This may explain the lack of a statistically significant relationship between age and Hp infection in this work, thus requiring cohort studies. It is the same for the intervention of the sex which appears controversial in the literature. Indeed, some studies have noted a male predominance, others a mixed frequency and others, like ours, a female predominance of the infection, thus explaining the lack of a statistically significant link [23-25].

It is described that poverty is a factor of high prevalence of Hp infection [3], and our study has shown no significant correlation between Hp infection and the socio-economic status of our patients. In his study, Ilboudo et al argues that in Africa, every adult, regardless of socioeconomic status, has had a childhood in an environment that is conducive to contamination [24]. This hypothesis could justify this result.

With the exception of the sanitary type, we found no significant difference between Hp infection and other patient lifestyles (household size, water source). This suggests that the sources of contamination of our patients would probably be old, dating from early childhood, including the transmission by saliva or consumption of foods chewed by the mother in some customs.

Regarding the relationship between Hp infection and endoscopic findings, the explanation is that the gastric and duodenal mucosa may be normal in case of gastritis and that Hp infection is strongly implicated in the occurrence of gastric or duodenal ulcer as described in the literature [1].

Conclusion

The frequency of Hp infection is high in the study population. Awareness campaigns on the knowledge of risk factors and the various associated pathologies are necessary for the prevention of this infection. Cohort studies will identify all the risk factors for transmission of this infection among Congolese.

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