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Chronic Gastritis at Helicobacter Pylori: Relevance of Classifications OLGA and OLGIM

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Abstract: *Introduction:* Chronic gastritis with Helicobacter pylori is a common condition that progresses in 1-3% of cases to gastric adenocarcinoma. The purpose of this work was to identify high-risk patients in the OLGA and OLGIM classifications. *Methods*: This was a 4-year and 8-month descriptive retrospective study in N'Djamena. Included were all gastric biopsies for histological analysis in the Department of Pathological Anatomy and Cytology. *Results*: one hundred and fifty-two gastric biopsies were analyzed, including 79 cases of chronic gastritis. The average age of patients was 46.53 years with extremities of 11 and 80 years. Males account for 54.3% compared to 45.7% for females. The sex ratio was 1.2. High-risk cases vary 28.6% according to OLGA and 4.3% according to OLGIM. A statistically significant correlation was found between the OLGA and OLGIM stages and age over 55 ($p = 0.0088$). OLGIM underestimates 85% of high-risk cases according to OLGA. The level of risk increases with age. Eight cases of dysplasia were identified, including 5 cases (62.5%) associated with high-risk OLGA stages and 1 case (12.5%) with high-risk OLGIM stages. Seven cases of dysplasia (87.5%) were associated with low-risk OLGIM and 3 cases (37.5%) were associated with low-risk OLGA stages. *Conclusion*: OLGA and OLGIM systems in addition to the Sydney system allow the identification of chronic gastritis with high-risk Helicobacter pylori that evolves towards gastric adenocarcinoma.

Keywords: Chronic Gastritis, *H. pylori*, OLGA and OLGIM, Chad

1. Introduction

Chronic gastritis is an inflammatory and persistent disease of the gastric mucosa characterized by inflammatory infiltrate rich in lymphocyte cells [1]. It has several etiologies, the main one being Helicobacter pylori (*H. p)* infection. This bacterium is a gram-negative bacterium with essentially oro-oral and oro-fecal transmission [2]. It has a variable prevalence: 40% in Eastern Europe, 80% in Asia, 72% in South America and of the order of 70% in sub-Saharan Africa [2] and 60.82% in N'Djamena-Chad [3]. Chronic *H. p* gastritis progresses in 1-3% of cases to gastric adenocarcinoma via glandular atrophy, intestinal metaplasia and dysplasia [4].

In practice, the Sydney classification [5] is commonly used to stadify chronic gastritis to H. pylori but it does not clearly identify patients at high risk for gastric adenocarcinoma.

Thus, Rugge and Capelle respectively proposed the histoprognostic classifications called OLGA (Operative link for Gastritis Assessment) and OLGIM (Operative link on Gastric Intestinal Metaplasia Assessment), which make it possible to identify high-risk cases [6, 7]. These classifications are rarely used in Africa.

In Chad, despite the high prevalence of Hp infection, no work has been done on this subject to our knowledge. Hence the interest of this work which aims to evaluate the OLGA and OLGIM classification and thus identify high-risk cases of chronic gastritis.

2. Methodology

It was a retrospective, descriptive study of 4 years and 8 months (January 2016 to August 2020) at the Pathological Anatomy and Cytology Department of the National Reference Hospital of N'Djamena, Chad. Included were patients of all sexes, aged 18 years or older, who had 5 gastric biopsies taken for histological study (2 at the gastric anterior, one at the angle of the small gastric curvature and 2 others at the gastric body). The biopsies were fixed to formalin 10% and then treated according to the technique described by the association of Pathology Cytology Development (PCD, 2014).

2.1. OLGA Classification

It is based on the semi-quantitative evaluation of the intensity of atrophic lesions of the fundic and antral mucosa with stages ranging from 0 to IV [6].

2.2. OLGIM Classification

It consists of subdividing the cases into five stages (from 0 to IV) and according to the site of intestinal metaplasia (antral and fundic) thus defining the overall score of intestinal metaplasia [7]. For these two types of classifications, stages 0, I and II represent stages of low evolutionary risk. Stages III and IV define stages of evolutionary high risk.

2.3. Statistical Analysis

Statistical analyzes were performed using SPSS V18 software. To study the relationship between two variables, the Chi^2 test was used. The differences were considered significant when p was less than 0.05.

3. Results

A total of 152 gastric biopsies were analyzed, including 70 cases of chronic gastritis with H. pylori, a prevalence of 46.05%.

The average age of patients was 46.53 years with extremes of 18 and 80 years. The age group most affected was 35-54 years. Male predominance was found in 54.3% of cases (n=38). The sex ratio was 1.2.

According to the OLGA classification, high-risk cases accounted for 28.6% (Stage III=15.7% and Stage IV=12.9%). The rate of high-risk cases increased with age.

There was a very significant relationship (p=0.0001) between OLGA stages and the age group 55 years and older.

Table 1. *Distribution of cases by age group and OLGA stages.*

Aging (year)	OLGA stages						
	Stade 0	stade I	stade II	stade III	stade IV	Total	p
<15	0	0	1	0	0	1	0,497
15-34	4	6	3	1	1	15	0,0032
35-54	6	11	8	4	3	32	0,0319
55-74	0	8	1	5	4	18	0,000
> 74	0	1	1	1	1	4	0,053
Total	10	26	14	11	9	70	

The high-risk cases according to OLGIM were 4.3% (Stage III = 1.4% and IV = 2.9%).

A statistically significant relationship was also found between OLGIM stages and age (p=0.021). High-risk cases occur from age 55.

Table 2. *Distribution of cases by age group and OLGIM stages.*

Aging (year)	OLGIM stage						
	stade 0	stade I	stade II	stade III	stade IV	Total	p
<15	1	0	0	0	0	1	1,000
15-34	15	0	0	0	0	15	0,0000
35-54	30	0	2	0	0	32	0,0000
55-74	15	0	1	0	2	18	0,0000
> 74	3	0	0	1	0	4	0,0000
Total	64	0	3	1	2	70	

Eight cases of dysplasia were found. There was no significant binding between the OLGA stages and dysplasia (p=0.233). Of the 8 cases of dysplasia, 62.5% are associated with high-risk OLGA stages and 37.5% with low-risk OLGA stages. There was no correlation between OLGIM and dysplasia (p=0.251). However, 12.5% of dysplasia cases were associated with high-risk OLGIM stages and 87.5% of cases are associated with low-risk OLGIM stages.

On the other hand, a significant link between the OLGA and OLGIM stages was observed (p=0.0088).

4. Discussion

The purpose of this study was to demonstrate the need to monitor high-risk chronic gastritis cases with scientific justification. It confirmed the existence of pre-cancerous lesions in patients with chronic gastritis at Helicobacter pylori.

The frequency of H. pylori chronic gastritis in this series is 46.05%. This frequency is below that of other African

authors who reported 56.7% in Cameroon, 53.4% in Togo, 57.8% in Côte d'Ivoire and 60% in Algeria [8-11]. However, it is consistent with literature data showing a decline in H Pylori infection in Africa. This decrease may be explained by antibiotic self-medication and proton pump inhibitors in our context. This self-medication would help to mask H. pylori during histological analysis [12]. On the other hand, the urbanization of our African cities, thus contributing to the improvement of the health of our populations, could also explain this decrease in the prevalence of infection.

The average age of patients is 46.53 years with extremes of 18 and 80 years. The age group most affected is youth (35-54 years). This finding is related to literature data [13-15]. Male predominance with a sex ratio of 1.2 was found in this study. This male predominance observed by several authors is linked to other factors in addition to Helicobacter pylori infection which could equally affect both men and women [7, 9, 14].

High-risk cases account for 28.6% according to the OLGA classification. This is higher than in Tunisia, the Netherlands, Portugal, Colombia and Turkey [13, 7, 16-18]. The delay in diagnosis due to the difficulties of proper care would explain this difference in our environment. Digestive endoscopy and histological analysis of biopsies have so far been inaccessible to a large part of the population, both in terms of cost and availability. Therefore, failure to perform biopsies in normal gastroscopy would help explain this situation when the absence of endoscopic lesions does not preclude chronic gastritis in histology [19]. However, our result is lower than that of China [20]. This confirms the literature data regarding the Asian zone as an area with high prevalence of chronic H. pylori gastritis and stomach cancer [2].

There is a very significant link between OLGA stages and the age group of 55 years and over. Thus, we can say that high age is correlated with a high risk of chronic gastric disease. There was also a significant relationship between OLGIM stages and age. These findings were also made by the Tunisian and Croatian authors [13, 21]. These data support the literature which states that glandular atrophy and intestinal metaplasia take place as a function of the time taken by H. pylori infection; therefore, a link with age [22].

Eight cases of dysplasia were found in this study. Of these, 37.5% are associated with low-risk OLGA stages. According to OLGIM, 87.5% of dysplasias are associated with stage 0. These results are in line with literature data which say that diffuse gastric adenocarcinoma can occur in the absence of atrophy and/or metaplasia. Because it does not always respect the natural history of chronic gastritis at H. pylori [23].

A statistically significant relationship between the OLGA and OLGIM stages (p=0.0088) was found in this study. OLGIM underestimates 85% of high-risk cases according to OLGA. This discrepancy between these two systems can be explained by the literature that there is a poor inter-observer agreement on precancerous lesion with a type of glandular atrophy [24].

5. Conclusion

Chronic H. pylori gastritis at high risk of gastric adenocarcinoma is common in our environment according to the OLGA classification. However, the OLGIM classification underestimates some high-risk cases according to OLGA. Thus, a combination of these two classifications for staging chronic gastritis at H. pylori is useful in order to avoid depriving some high-risk patients of rigorous monitoring. It is important to note that chronic low-risk gastritis in OLGA and OLGIM systems associated with epithelial dysplasia are high-risk cases. Because diffuse adenocarcinoma does not always respect the natural history of chronic gastritis at H. pylori. In perspective, a broader study on the follow-up of high-risk patients after eradication of Helicobacter pylori could reveal the effectiveness of this monitoring in preventing gastric adenocarcinomas.

Conflicts of Interest

All the authors do not have any possible conflicts of interest.

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