

GASTRITIS AND *HELICOBACTER PYLORI* IN CHILDREN – PRIMARY AND SECONDARY ENDOSCOPIC DIAGNOSIS

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ABSTRACT

The infection with *Helicobacter pylori* (*H. pylori*) represents an important issue of public health.

Aim. Establishing the prevalence of *H. pylori* infection in children and presenting the cases according to the gastritis type by performing upper digestive endoscopies.

Material and method. The retrospective study referred to a period of 5 years and included 1269 children evaluated by upper endoscopy to establish the *H. pylori* infection rate.

Results. The frequency of *H. pylori* in the case of acute gastritis was significantly more reduced (34.78%) than in the case of chronic gastritis (54.94%). Referring to the 10 types of gastritis, the most frequent ones are purpuric (43.66%), nodular purpuric (25.93%) and nodular antral (15.84%). At the other end, atrophic and hypertrophic gastritis were positioned. The most frequent associations pointed out endoscopically are those with 1st degree esophagitis - 51.6%, duodenitis – 45.07% and purpuric duodenitis – 24.74%.

Conclusions. The *H. pylori* infection is the most frequent etiologic factor for chronic gastritis (54.94%). The early identification of the infection is essential to destroy the bacteria and to prevent the development of various types of gastritis that are later on endoscopically identified.

Keywords: gastritis, *H. pylori*, upper endoscopy, child

INTRODUCTION

Helicobacter pylori (*H. pylori*) is one of the most frequent chronic bacterial infections worldwide and, at the time being, it is estimated that almost half of the world's population is infected with this bacteria (1,2). *H. pylori* causes active chronic gastritis in both adults and children (3) and it is associated with peptic ulcer, atrophy, intestinal metaplasia and gastric cancer in adults (4).

The role of *H. pylori* was demonstrated in the pathology of gastritis and the positive correlation of the infection with the prevalence of gastritis and, subsequently, with the pathology characteristic to the adult. The early identification of the infection is the key element in destroying the bacteria and in preventing the apparition of various types of gastritis that are later on endoscopically identified.

AIM

Establishing the frequency of *H. pylori* infection in pediatric population and identifying the cases according to the characteristics and the type of gastritis at a significant group of children with specific symptoms, by performing superior digestive endoscopy.

MATERIAL AND METHOD

The retrospective study referred to a period of 5 years and included 1269 children aged between 1 – 18 years old diagnosed with gastritis, after establishing the medical history of the patient and performing the clinical and laboratory examination in a pediatric gastroenterology regional center in northeast Romania.

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The technique used for performing upper endoscopy:

- Children were examined after 8-10 hours of digestive repose, while young children (under 4 years old) after 6 hours of digestive repose.
- At younger children, less than 10 years old, general anesthesia with OTI was performed, the propofol dose being of 2 mg/kg.
- During the study, for sedating the patients were used: Dormicum, dose 0.15- 0.20 mg/kg and Midazolam, dose 0.1-0.2 mg/kg, iv.
- The patients were positioned on their left side, with their head in semi flexion and knees flexed.
- In the oral cavity, between the dental arches an oral piece was introduced for avoiding the endoscope during the entire medical examination.

Endoscopy allows the examination of the segments seen and the extraction of several biopsies of the gastric mucosa in the antral region (2 cm around the pylorus) and in the fundic region for pointing out the presence of *H. pylori*.

The presence of the bacteria is underlined by either direct examination, culture or by analyzing the activity of urease.

Some of the patients were serologically tested for detecting the IgG type anti *H. pylori* antibodies and salivary tests were performed as well.

From the study were excluded the patients who came for upper endoscopy, for the second time, to confirm the eradication of *H. pylori*. Another criterion for exclusion was the previous consumption of nonsteroidal anti-inflammatory drugs.

RESULTS

Relying on the Sydney system which allows the identification of three types of gastritis, which are seen as clinical morphological entities: acute gastritis, chronic gastritis, special gastritis, we have focused on the frequency of this disorder in the group taken into consideration. A high frequency of the cases of acute gastritis (68.67%) was found, while the cases of chronic gastritis represented only 31.13%.

Although more frequent, in the case of acute gastritis, the frequency of *Helicobacter pylori* was significantly smaller (34.78%), if we compare it to that in the case of chronic gastritis (54.94%) (Table 1).

The analysis demonstrated the significant relationship between *Helicobacter pylori* and chronic gastritis ($\chi^2=45.66$, $r=-0.539$, $p<<0.05$, 95%CI).

After the upper endoscopy, the distribution of the cases according to the type of gastritis pointed

TABLE 1. Assessing the association of *Helicobacter pylori* vs. gastritis type

Gastritis	Helicobacter pylori		Total
	with HP	without HP	
Acute	304	570	874
	34.78%	65.22%	
Chronic	217	178	395
	54.94%	45.06%	
Total	521	748	1269

out a higher number of cases of purpuric gastritis (43.66%), nodular purpuric gastritis (25.93%) and nodular antral gastritis (15.84%). On the other hand, aphthous nodular gastritis (0.16%), atrophic gastritis (0.24%) and hypertrophic gastritis (1.65%) recorded very low frequencies. Frequencies below 10% were recorded for erosive gastritis (4.73%), diffuse gastritis (4.02%) and erosive hemorrhagic gastritis (4.02%).

The types of gastritis were also analyzed considering whether they were acute or chronic (Fig. 1).

After the upper endoscopy, other pathologies were also identified at the level of the esophagus, stomach or duodenum (Fig. 2).

The most frequent secondary diagnosis (at endoscopy) was 1st degree esophagitis (51.6%), being followed by diffuse duodenitis (47.07%), purpuric duodenitis (24.74 %) and 2nd degree esophagitis (23.17%).

The upper endoscopy was performed without any major complications except for sore throat that was self-limited.

DISCUSSIONS

In order to perform the upper endoscopy, the main indications were recurrent abdominal pains, upper digestive hemorrhage, epigastric pains, recurrent vomiting.

Recurrent abdominal pain refers to episodes of abdominal pain which is severe enough to affect the daily activity of a child. It is demonstrated by three or more bouts in at least a three-month period (5).

In unselected samples, infected children do not report abdominal pain more often than non-infected children (6).

It is generally accepted that *H. pylori* infection is the main etiologic factor for gastritis and peptic ulcer (7). The prevalence of *H. pylori* infection differs from one region to the other and it is also related to age. In the United States, the children positive for *H. pylori* aged under 10 represent less than 5%, while the adults of 20 and over 60 represent 10% and 60% respectively (8). In Japan, the preva-

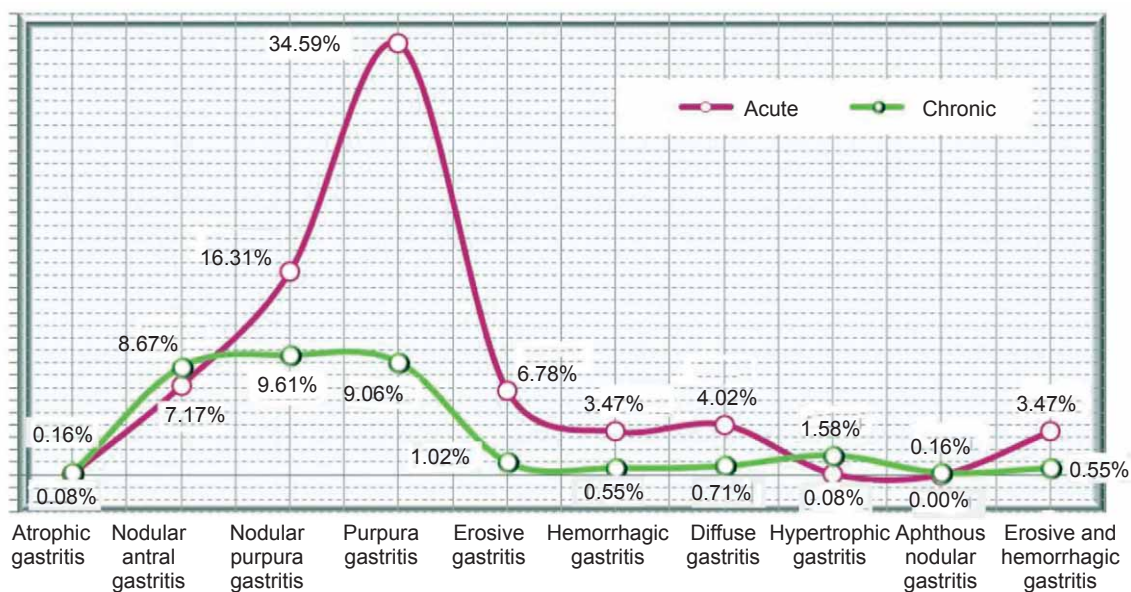


FIGURE 1. The distribution of cases according to the characteristics and the type of gastritis

Secondary endoscopy diagnosis

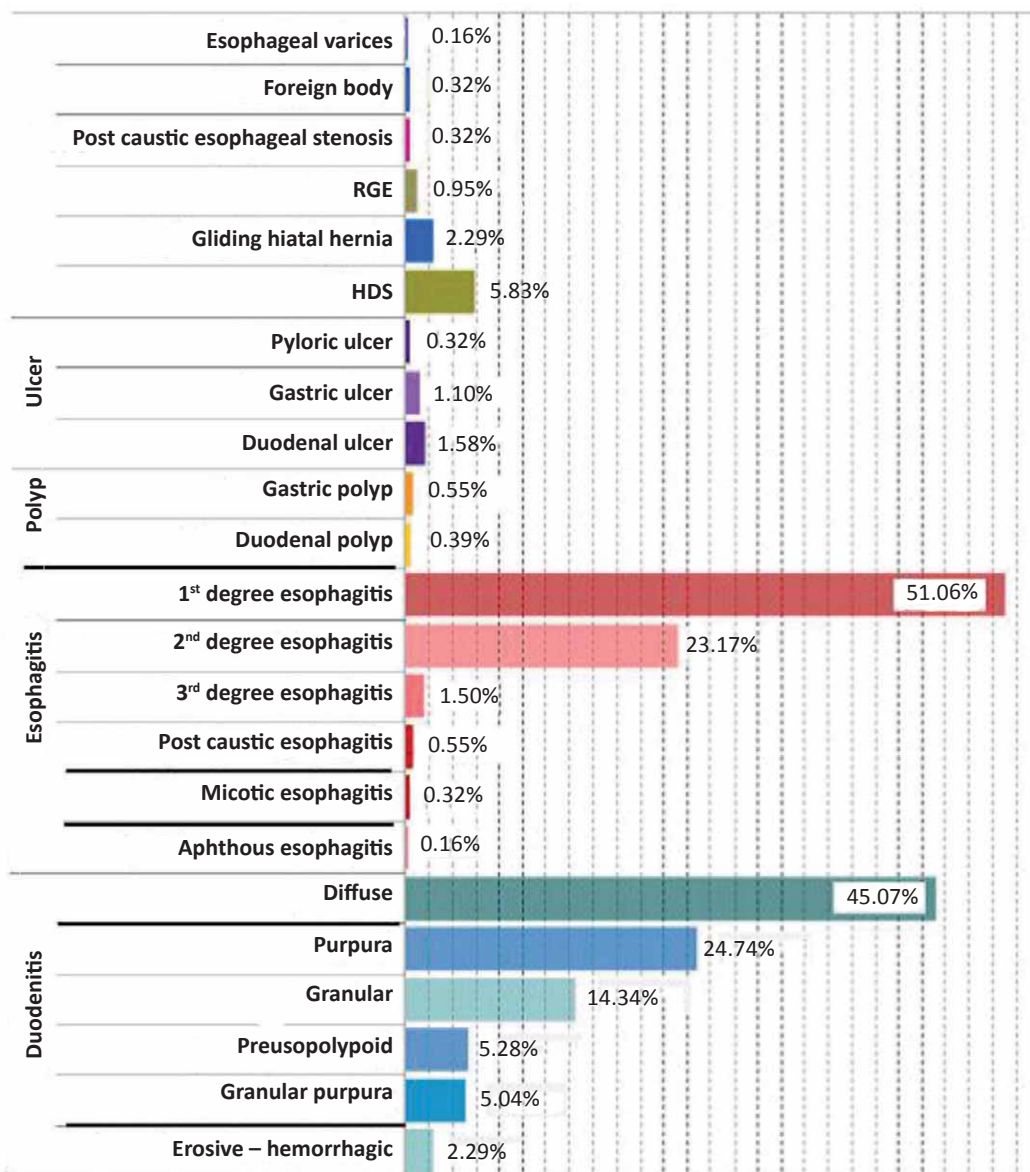


FIGURE 2. Secondary diagnosis (endoscopy)

lence of *H. pylori* infection at people aged between 15 and 19 years old represented 29% (9). In Italy, the children under 12 who presented *H. pylori* infection represented 34% (10). In Bangladesh, Mahalanabis et al. studied 469 children aged between 6 and 9 years old and noticed that *H. pylori* infection was present in 84% of the cases (11). The present study indicates an average result, 34.78% for acute gastritis and 54.94% for chronic gastritis.

Observing a group of 275 children aged between 1 and 15 who presented various gastrointestinal symptoms resulted that the *H. pylori* infection was present in 23.6% of the cases, information which suggested that *H. pylori* infection represents a problem for that particular area and all the children with gastrointestinal dysfunctions and all the members of the family should be examined (12).

In a study performed on 328 patients diagnosed with *H. pylori* infection, nodular gastritis was the most frequent one (50.6%) (13).

For the 1269 children included in the study, the distribution of the cases according to the type of gastritis indicates more cases of purpuric gastritis (43.66%), nodular purpuric gastritis (25.93%) and nodular antral gastritis (15.84%).

A retrospective study performed on a group of 206 children focused on the relation between *H. pylori* infection and the erosive reflux disease in children. The prevalence of erosive esophagitis equaled 23.8% at the patients with *H. pylori* infection and

41.3% at those not infected. Thus, no significant associations were identified between *H. pylori* infection and erosive esophagitis, and it did not significantly influence the severity of the esophagitis (14).

Findings of upper endoscopy in a 2 year prospective study in 150 children were represented by normal 24 (16%), hiatal hernia 30 (20%), different grades of esophagitis 60 (40%), esophageal erosion 39 (26%), gastric erythema 51 (34%), nodular gastritis 45 (30%), gastric ulcer 9 (6%), duodenal ulcer 3(2%) (15).

In this study, the fact that 1st degree esophagitis resulted to be the most frequent secondary endoscopic diagnosis could not be directly related to *H. pylori* infection.

CONCLUSIONS

H. pylori infection is the most frequent etiologic factor of chronic gastritis (54.94%); referring to the 10 types of gastritis, the most frequent ones are purpuric, nodular purpuric and nodular antral, the rarest are the atrophic and hypertrophic gastritis.

The early identification of the infection represents the key factor in destroying the bacteria and in preventing the apparition of various types of gastritis, that are later on endoscopically identified.

The most frequently associations pointed out endoscopically are those with 1st degree esophagitis, duodenitis and purpuric duodenitis.

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