

## Original Research

### Evaluation of prevalence of *Helicobacter pylori* in children with gastritis

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#### ABSTRACT:

**Background:** The present study was conducted for evaluating the prevalence of *Helicobacter pylori* in children with gastritis. **Materials & methods:** A total of 100 children with presence of gastritis were enrolled. Complete demographic and clinical details of all the patients was recorded. A Performa was made and details past medical history of all the patients was recorded separately. *H. pylori* tests of biopsy specimens included histologic examination (Giemsa or silver staining), urease test, and/or culture. Prevalence of *Helicobacter pylori* in children with gastritis was recorded. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software. **Results:** Prevalence of *Helicobacter pylori* in children with gastritis was 66 percent of the patients. Mean age of the subjects with and without *Helicobacter pylori* infection was 10.3 years and 12.7 years respectively. Non-significant results were obtained while correlating *Helicobacter pylori* with age and gender. **Conclusion:** The prevalence of *H. pylori* infection in children is very high and is independent of age and gender.

**Key words:** *Helicobacter pylori*, Children, Gastritis

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#### INTRODUCTION

Infection with *Helicobacter pylori* is the most common identifiable cause of gastritis in children and adults. The pathogenesis of *H. pylori* associated gastric cancer is thought to proceed through a series of steps of increasingly damaged gastric mucosa. Although *H. pylori* infection is typically acquired in childhood, there are few data regarding the prevalence of atrophy or intestinal metaplasia (precancerous changes) in the stomachs of children. *Helicobacter pylori* gastritis has been described in the antrum, and less frequently in the corpus, of children. In contrast, mucosal atrophy in children is either rare or under-recognised, and when it has been identified it has not been well characterised.<sup>1-3</sup>

The evidence that *H. pylori* infection causes peptic ulcer disease is compelling. Thus, all current guidelines recommend testing for and treating *H. pylori* infection in this context. However, currently, the level of evidence supporting an association between specific symptoms due to *H. pylori* infection in children and recurrent abdominal pain is insufficient to advocate testing and treating in this clinical context. Macarthur et al applied a rigorous epidemiological tool to published studies and found no temporal relationship,

biological plausibility or supporting experimental evidence that *H. pylori* infection plays a role in recurrent abdominal pain. Furthermore, a similar prevalence of *H. pylori* infection in children with and without functional abdominal pain was identified in case control trials. Unfortunately, the reported treatment trials that lack controls do not provide additional supportive information.<sup>4-6</sup> Hence; the present study was conducted for evaluating the prevalence of *Helicobacter pylori* in children with gastritis.

#### MATERIALS & METHODS

The present study was conducted for evaluating the prevalence of *Helicobacter pylori* in children with gastritis. A total of 100 children with presence of gastritis were enrolled. Complete demographic and clinical details of all the patients was recorded. A Performa was made and details past medical history of all the patients was recorded separately. Only those pediatric patients underwent upper gastrointestinal endoscopy because of abdominal symptoms were included. *H. pylori* testing was done in all the patients. Biopsy specimens were obtained from the gastric antrum and/or body. *H. pylori* tests of biopsy

specimens included histologic examination (Giemsa or silver staining), urease test, and/or culture. Prevalence of *Helicobacter pylori* in children with gastritis was recorded. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software.

## RESULTS

A total of 100 pediatric subjects were enrolled. Mean age of the subjects was 11.3 years. Out of these 100 subjects, 71 were boys while the remaining 35 were females. Prevalence of *Helicobacter pylori* in children with gastritis was 66 percent of the patients. Mean age of the subjects with and without *Helicobacter pylori* infection was 10.3 years and 12.7 years respectively. Non-significant results were obtained while correlating *Helicobacter pylori* with age and gender.

**Table 1: Prevalence of *Helicobacter pylori* in children with gastritis**

H. Pylori	Number	Percentage
Present	66	66
Absent	34	34
Total	100	100

**Table 2: Correlation of *Helicobacter pylori* with age and gender**

Variable		<i>Helicobacter pylori</i> : Present	<i>Helicobacter pylori</i> : Absent	p- value
Mean age		10.3	12.7	0.84
Gender	Boys	48	23	0.12
	Girls	18	11	

## DISCUSSION

*Helicobacter pylori* (*H. pylori*) is the most common cause of chronic gastritis and peptic ulcer disease, and is associated with gastric cancer and mucosa associated lymphoid tissue lymphoma (MALToma). About 30-100% of children with nodular gastritis, 2-5 90% of duodenal ulcer, and about 25% of gastric ulcers had *H. pylori* infections. In contrast to adult patients, histopathologic findings of *H. pylori* infection in children show little neutrophil infiltration, more monocytes and lymphoid follicles microscopically, and more nodular gastritis endoscopically. Chronic active gastritis can be diagnosed with histopathologic examination in *H. pylori* infected children who exhibited normal findings upon endoscopic examination.<sup>6-9</sup> Hence; the present study was conducted for evaluating the prevalence of *Helicobacter pylori* in children with gastritis.

A total of 100 pediatric subjects were enrolled. Mean age of the subjects was 11.3 years. Out of these 100 subjects, 71 were boys while the remaining 35 were females. Prevalence of *Helicobacter pylori* in children with gastritis was 66 percent of the patients. In a similar previous study conducted by Maarooos HI et al, authors evaluated *Helicobacter pylori* and gastritis in children with abdominal complaints. Gastroscopy with biopsies was performed in 178 children with upper abdominal pain. Of them 109 (61%) had gastritis and 104 (58%) *Helicobacter pylori* (HP) in antrum and/or corpus. Gastritis consisted in most cases (87% of antral and 86% of corpus gastritis) of mild superficial round cell infiltration. Mucosal atrophy was not found. Accumulation of granulocytes was present in 43 patients and lymphonoduli were found in 33 patients, usually in connection with gastritis. Gastritis affected only the antrum in 18%, only the corpus in 5% and both antrum and corpus in 62% of the cases of

gastritis. There was a good correlation between morphology and bacteriology in the antrum and a satisfactory one in the corpus. However, in some cases gastritis was present without bacteria and in some cases a normal mucosa was associated with bacteria. Gastritis and HP prevalences showed a general increasing trend with age, but significances were with one exception lacking. It is tentatively concluded that gastritis begins in childhood as a slight and chronic superficial infiltration affecting usually antrum and corpus simultaneously.<sup>10</sup>

Mean age of the subjects with and without *Helicobacter pylori* infection was 10.3 years and 12.7 years respectively. Non-significant results were obtained while correlating *Helicobacter pylori* with age and gender. Ceylan Abdullah et al determined the prevalence of *Helicobacter pylori* among children and their family members and to evaluate some epidemiologic characteristics. The study included 275 children, aged 1-15 year(s), suffering from different gastrointestinal complaints. Blood serology and stool antigen testing were used for the diagnosis of infection due to *H. pylori*. Sixty-five (23.6%) of the 275 children were positive for *H. pylori*, and this positivity had a significantly increasing correlation with age ( $p < 0.001$ ). *H. pylori*-associated infection was observed among 45 (69.2%) and 17 (8%) mothers in the *H. pylori*-infected and non-infected groups respectively ( $p < 0.0001$ ). Most children and their families infected with *H. pylori* were living in an urban area. The findings suggest that infection due to *H. pylori* is a problem for this district area, and all children having any gastrointestinal complaints should be examined whether *H. pylori* was prevalent among their family members.<sup>11</sup> Jafar Soltani et al determine the prevalence of *H. pylori* infection among Kurdish children. A questionnaire was used to collect data about age, sex,

duration of breastfeeding, and family size. A total of 458 children aged 4 months to 15 years were enrolled in the study. The mean age of enrolled children was  $5.6 \pm 5.4$  years. Stool samples were positive for *H. pylori* in 294 (64.2%) children. The prevalence of *H. pylori* infection increased with age ( $P < 0.001$ ). We found a significant increase in the infection rate as the family size grew ( $P = 0.005$ ). There was no correlation between a positive *H. pylori* status and gender ( $P = 0.6$ ) or the duration of breastfeeding ( $P = 0.8$ ). It seems that the prevalence of *H. pylori* infection is very high in children.<sup>12</sup>

## CONCLUSION

The prevalence of *H. pylori* infection in children is very high and is independent of age and gender.

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