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**Letter to the Editor**

# *Helicobacter pylori* Related Health Problems in Children

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## Dear Editor-in-Chief

*Helicobacter pylori* infection is the most frequently seen infection worldwide. It is the most widely seen agent of gastrointestinal disease, primarily gastric disease. It causes also a wide spectrum of extra-gastrointestinal disorders. Cancer, lymphoma, cardiovascular disease, dermatological disease, liver and gallbladder diseases, anemia, diabetes mellitus, autoimmune disease, atopy, asthma, neurological disease, growth, failure to thrive, bone disease, and micronutrient deficiency could be associated with *H. pylori* infection, as has been suggested in literature, especially in the adults (1). As a result of the interaction of *H. pylori* in the place it directly settles in the stomach with the organism, it leads to diseases apart from in the gastro-intestinal system by a series of hormonal, immunological, cytokine and chemokine mediators. Although *H. pylori* infection is mainly acquired in childhood, complications generally arise much later. Therefore, pediatricians may not be aware of such situations.

The aim of this study was to update our knowledge with a review of literature on *H. pylori* infection and related events. This review was prepared by examining the relationship between *H. pylori* infection and related conditions in publications from the last decade pertaining to childhood.

*H. pylori* is the most common cause of gastritis which develops in all people infected with the bacteria (2). It is responsible for 95% of duodenal ulcer etiology and for 70-85% of stomach ulcer etiology (3). MALT (Mucosa associated lymphoid tissue) is a lymphoid tissue tumor associated with the mucosa and *H. pylori* plays a significant role in the pathogenesis. After eradication of the microorganism, a remission rate of 60-70% is seen in MALT lymphoma (4).

*H. pylori* has a possible association with several gastro-intestinal system diseases such as non-ulcer dyspepsia, lymphocytic gastritis, Menetrier disease, protein-losing enteropathy and gastro-oesophageal reflux (5).

Several studies have proven a strong relationship between iron deficiency anaemia and iron deficiency with *H. pylori* infection in children (1). How the bacteria lead to iron deficiency is not fully understood but various mechanisms have been suggested. One is the loss of iron in gastro-intestinal bleeding related to *H. pylori*. Chronic gastro-intestinal bleeding is not responsible (6). Another explanation of the mechanism is that *H. pylori* leads to hypochlorhydria with a negative effect on iron absorption.

Ascorbic acid has a significant effect on the increase of iron absorption (7). Another mechanism which has been suggested is that reduced ascorbic acid secretion of *H. pylori* reduces iron absorption. The prevalence of iron deficiency in *H. pylori* seropositive children has been determined as significantly high compared to seronegative children and

in cases with unexplained iron deficiency anemia, the anemia recovered and iron absorption test results returned to normal following eradication of *H. pylori*.

A further hypothesis is the relationship of *H. pylori* with hypochlorhydria. According to this, by raising the levels of gastric interleukine (IL)-1β and tumor necrosis factor (TNF)-α, *H. pylori* inhibits acid secretion, thereby causing hypochlorhydria and reduced iron absorption (1). A further association which has not been fully clarified is that the response to the combination of *H. Pylori* eradication with the application of anemia treatment is better than the response to anemia treatment alone.

An increase in autoimmune diseases with *H. pylori* eradication has shown that asthma, inflammatory intestinal diseases and multiple sclerosis are observed more in *H. pylori* negative children (8).

There are several studies on the relationship between *H. pylori* and idiopathic thrombocytopenic purpura (ITP), which have proposed that ITP develops as a result of the reaction of auto-antibodies which develop against the micro-organism with thrombocyte glycoproteins (9).

In recent years, *H. pylori* infection has been a factor affecting the rate of growth in children. *H. pylori* infection has a negative effect on height alone while others have stated it to be both height and weight gain. In addition, the prevalence of *H. pylori* infection seen in children with constitutional growth delay has been determined to increase with age (10).

In Europe, more than half the children presenting with delayed growth were infected with *H. pylori* and in a study in Scotland, infection was found at a higher rate in girls who were determined with delayed growth in puberty. *H. pylori* as an infection acquired in early childhood seems to be one of the major factors affecting growth in children (1).

In conclusion, it is of great importance that new research is conducted in developed and developing countries to better clarify the relationship between growth, asthma and atopy and *H. pylori* supported by relatively strong evidence of the connection with ITP, iron deficiency anemia and vitamin B12 deficiency.

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