

Letter to the Editor

Helicobacter pylori Infection and Anemia

Dear Sir:

In their comprehensive and rigorous study on the etiology of anemia in Côte d'Ivoire, Righetti and others¹ reported high prevalence of anemia (45–75%), inflammation, and deficiencies of iron, riboflavin, and vitamin A. The factors that were significantly and positively linked to the prevalence of anemia differed by age group: (1) infection with *Plasmodium falciparum* in 6- to 23-month-old children, (2) cellular iron deficiency and chronic inflammation in 6- to 8-year-old children, and (3) cellular iron deficiency in non-pregnant young women.¹ Identifying modifiable risk factors like the factors reported by Righetti and others¹ is highly important and can help in establishing interventions aimed at reducing the burden of anemia.

Helicobacter pylori colonizes the stomach; typically, it is acquired in childhood and causes asymptomatic chronic infection, which is highly endemic in developing countries.² A small portion of *H. pylori*-infected subjects develop peptic ulcers and gastric carcinoma, usually in late adulthood.² In well-designed studies, *H. pylori* was found to be associated with increased likelihood of iron deficiency anemia (IDA)^{3,4}; furthermore, anti-*H. pylori* therapy substantially reduced the percentage of children affected with IDA.⁵ In a community-based study among Arab children in Israel, we found significantly lower mean hemoglobin levels in children ages 6–9 years who were infected with *H. pylori* compared with their uninfected peers.⁶ *H. pylori* was also associated with low ferritin levels.^{6,7} In a systematic review and meta-analysis,⁸ we found higher prevalence of IDA in *H. pylori*-infected subjects than uninfected ones (pooled odds ratio = 2.8; 95% confidence interval = 1.9–4.2).⁸

We recommend the investigation of *H. pylori* infection as a potential factor that might play a role in the occurrence of anemia in this population.¹ Trials on the impact of anti-*H. pylori* therapy on the burden of anemia and IDA could shed light on whether the association between *H. pylori* and these disorders is causal.

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REFERENCES

1. Righetti AA, Koua AYG, Adiossan LG, Glinz D, Hurrell RF, N'goran EK, Niamké S, Wegmüller R, Utzinger J, 2012. Etiology of anemia among infants, school-aged children, and young non-pregnant women in different settings of South-Central Côte d'Ivoire. *Am J Trop Med Hyg* 87: 425–434.
2. Suerbaum S, Michetti P, 2002. *Helicobacter pylori* infection. *N Engl J Med* 347: 1175–1186.
3. Cardenas VM, Mulla ZD, Ortiz M, Graham DY, 2006. Iron deficiency and *Helicobacter pylori* infection in the United States. *Am J Epidemiol* 163: 127–134.
4. Baggett HC, Parkinson AJ, Muth PT, Gold BD, Gessner BD, 2006. Endemic iron deficiency associated with *Helicobacter pylori* infection among school-aged children in Alaska. *Pediatrics* 117: e396–e404.
5. Fagan RP, Dunaway CE, Bruden DL, Parkinson AJ, Gessner BD, 2009. Controlled, household-randomized, open-label trial of the effect of treatment of *Helicobacter pylori* infection on iron deficiency among children in rural Alaska: results at 40 months. *J Infect Dis* 199: 652–660.
6. Muhsen K, Barak M, Henig C, Alpert G, Ornoy A, Cohen D, 2010. Is the association between *Helicobacter pylori* infection and anemia age dependent? *Helicobacter* 15: 467–472.
7. Muhsen K, Barak M, Shifnaidel L, Nir A, Bassal R, Cohen D, 2009. *Helicobacter pylori* infection is associated with low serum ferritin levels in Israeli Arab children: a seroepidemiologic study. *J Pediatr Gastroenterol Nutr* 49: 262–264.
8. Muhsen K, Cohen D, 2008. *Helicobacter pylori* infection and iron stores: a systematic review and meta-analysis. *Helicobacter* 13: 323–340.