

## HELICOBACTER PYLORI

# *H. pylori* infection might suppress allergy in children

A new study by Paul Harris and colleagues demonstrates an inverse correlation between allergy and *Helicobacter pylori* infection in children, but not adults. Interestingly, this relationship is associated with high levels of transforming growth factor  $\beta$  (TGF- $\beta$ ), a marker of regulatory T-cell ( $T_{REG}$ ) responses. “The notion that *H. pylori* infection might downregulate allergies is rather controversial. Our study is the first study showing that this inverse association is age- and TGF- $\beta$ -dependent,” says Harris.

Patients’ *H. pylori* infection status was determined by IgG serology, rapid urease tests and histological evaluations of endoscopic mucosal biopsy samples, whereas their allergy status was determined by skin tests for hypersensitivity to a panel of 40 allergens, serum IgE levels and two validated clinical questionnaires.

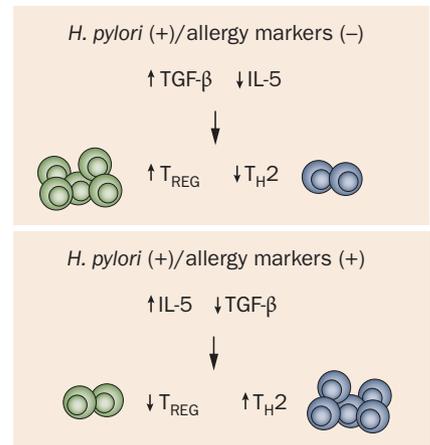
The study participants were 98 children and 67 adults with symptoms of peptic disease, among whom 42.9% and 52.2% were *H. pylori*-infected, respectively. The proportion of individuals with allergies was lower in *H. pylori*-infected than *H. pylori*-free children. In addition, children with severe allergies were significantly more likely to be either *H. pylori*-negative or infected with a

less virulent strain of the bacteria than children with mild or no allergy. As none of these differences was detected in adults, the researchers suggest that *H. pylori* infection during childhood might suppress the development of allergies.

“A plausible mechanism by which *H. pylori* might downregulate allergies is by provoking a strong  $T_{REG}$  response to the infection,” explains Harris. In this regard, the researchers previously reported that *H. pylori* infection induces a stronger regulatory immune response in children than in adults. Consistent with these data, they now show that *H. pylori*-infected children with allergies have lower levels of TGF- $\beta$  and higher levels of IL-5 (a marker of T-helper type 2 responses that are characteristic of allergic disorders) in their sera and gastric mucosa than infected children without allergies. This difference was also not detected in adults.

Harris and colleagues will next investigate whether other differences in mucosal responses to *H. pylori* exist between children and adults; such research could aid understanding of the maturation of the immune system and its role in immune diseases.

“Our findings also raise the possibility that massive *H. pylori* eradication in [an]



asymptomatic population may promote the clinical expression of an underlying atopic disease,” the researchers write. “Such findings ... may influence public policies, particularly in countries with high prevalence of the infection and also high rates of gastric cancer,” adds Harris.

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