

# *Helicobacter pylori* Has an Inverse Relationship With Severity of Reflux Esophagitis

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**Article:** *Helicobacter pylori* serology inversely correlated with the risk and severity of reflux esophagitis in *Helicobacter pylori* endemic area: a matched case-control study of 5,616 health check-up Koreans  
Chung SJ, Lim SH, Choi J, et al  
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The association between *Helicobacter pylori* infection and gastroesophageal reflux disease (GERD) remains controversial, with geographical location being a strong contributor to the heterogeneity of results in different studies.<sup>1,2</sup> Studies from Western countries have shown an inconsistent association between GERD and *H. pylori*.<sup>3-5</sup> In contrast, a negative association between reflux esophagitis and *H. pylori* has been shown in most of the studies from East Asia.<sup>6-8</sup> A prospective cohort study with large scale in Korea showed that *H. pylori* infection had a strong negative association with reflux esophagitis and eradication of *H. pylori* increased the risk of reflux esophagitis.<sup>9</sup> However, there are few reports about the relationship between the severity of reflux esophagitis and *H. pylori*. Presence of *H. pylori* was associated with reduced severity across the spectrum of GERD, especially in Indians.<sup>8</sup>

In the current issue of the Journal, Chung et al<sup>9</sup> assessed the effect of *H. pylori* infection on the risk of reflux esophagitis in general population. They found that *H. pylori* seropositivity reduced the risk of reflux esophagitis (adjusted OR, 0.44; 95% CI,

0.39-0.49) after adjusting for potential confounders. This OR is similar with OR (adjusted OR 0.42; 95% CI, 0.34-0.51) from the previous Korean study.<sup>10</sup> Epidemiological evidence for the association between *H. pylori* infection and reflux esophagitis has been inconsistent, according to the study places.<sup>2</sup> In a study from a population-based setting in Northern Europe, *H. pylori* infection, irrespective of cytotoxin associated gene A (*cagA*) status, did not affect reflux symptoms.<sup>3</sup> However, the results of recent population-based studies performed in Western countries showed an inverse relation between *H. pylori* seropositivity and reflux esophagitis.<sup>4,11</sup> In contrast, the negative association between reflux esophagitis and *H. pylori* has been shown in most of the studies from East Asia.<sup>6-8,10</sup>

*H. pylori* seems to have a protective effect against GERD mainly through the development of atrophic gastritis and thereby decreased gastric acid secretion.<sup>6,7</sup> The more virulent type of *H. pylori* such as *cagA*-positive strain was postulated to promote the more intense gastric inflammation, exemplifying the risk of atrophy and thereby the further reduction in GERD risk.<sup>12,13</sup>

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However, *H. pylori* had a negative association with GERD even in atrophy-negative subjects, suggesting that *H. pylori* might protect GERD not only by atrophy-related low acid production but also by other mechanisms.<sup>4</sup> Intragastric urease, which is produced by *H. pylori*, increases the gastric pH.<sup>14</sup> Ammonia, which serves as an acid neutralizer, is one of the products of *H. pylori*. The development of reflux esophagitis was significantly inhibited by ammonia in a dose-dependent manner in the rat experiments.<sup>15</sup> That study indicates that ammonia protects against development of reflux esophagitis. A decreased amount of ammonia in the stomach might be related to the development of reflux esophagitis after *H. pylori* eradication. Actually, compared with the prevalence of reflux esophagitis in the persistent infection group, the prevalence of reflux esophagitis increased after a successful *H. pylori* eradication (OR, 2.34; 95% CI, 1.45-3.76;  $P < 0.001$ ), which was comparable to that of the *H. pylori*-negative group (OR, 2.42; 95% CI, 1.73-3.36;  $P < 0.001$ ) in a previous Korean study.<sup>10</sup>

In the large case-control study from Chung et al,<sup>9</sup> *H. pylori* seropositivity was inversely associated with the severity of reflux esophagitis with adjusted ORs of 0.63 in Los Angeles-M (LA-M), 0.36 in LA-A or B and 0.20 in LA-C or D ( $P < 0.001$ ). Although there are many evidences about the inverse relationship between reflux esophagitis and *H. pylori*, there are few reports about the association between severity of GERD and *H. pylori*. Presence of *H. pylori* was associated with reduced severity across the spectrum of GERD, especially in Indians, who had the highest *H. pylori* prevalence among multiethnic Asian populations.<sup>8</sup> In a small case-control study, compared with the prevalence of *H. pylori* infection in the non-reflux group, the prevalence in the mild and severe reflux groups was significantly lower (60.7%, 47.8% and 14.8%, respectively;  $P < 0.05$ ).<sup>7</sup> Barrett's esophagus, which has been considered as an advanced form of GERD, had a strong negative association with *H. pylori*.<sup>4</sup> *H. pylori* seropositivity was inversely associated with Barrett's esophagus and reflux esophagitis with adjusted ORs (95% CIs) of 0.35 (0.22 to 0.56) and 0.42 (0.27 to 0.65), respectively.<sup>4</sup>

In conclusion, the study by Chung et al<sup>9</sup> has contributed to a better understanding of a protective role of *H. pylori* against GERD by assessing the inverse relationship between *H. pylori* and severity of reflux esophagitis.

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