

Disappearing bacterium may protect against stroke

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A new study by NYU School of Medicine researchers reveals that an especially virulent strain of the gut bacterium *Helicobacter pylori* (*H. pylori*) isn't implicated in the overall death rate of the U.S. population, and may even protect against stroke and some cancers. The findings, based a nationwide health survey of nearly 10,000 individuals over a period of some 12 years, are published online, January 9, in the journal *Gut*.

Those individuals carrying the most [virulent strain](#) of *H. pylori*, the study found, had a 55 percent reduced risk of deaths from stroke compared with their counterparts who were not infected with *H. pylori*. Participants with the most virulent strain also had a 45 percent reduced risk of death from lung cancer.

These surprising findings emerged from an analysis by Yu Chen, PhD, MPH, associate professor of [population health](#) and [environmental medicine](#), and Martin J. Blaser, MD, professor of internal medicine and professor of microbiology, of individuals who participated in a national survey designed to assess the health and [nutritional status](#) of adults and children in the United States. Previous studies by Dr. Blaser have confirmed the bacterium's link to gastric diseases ranging from [gastritis](#) to [stomach cancer](#). He and Dr. Chen have more recently shown that *H. pylori* may protect against [childhood asthma](#). The most virulent *H. pylori* strains have a gene called cagA.

"The significance of this study is that this is a prospective cohort of

participants representative of the U.S. population with a long follow-up," says Dr. Chen. "We studied both the overall *H. pylori* as well as cagA strain of *H. pylori*, which is more interactive with the human body. We found that *H. pylori* is not related to the risk of death from all causes, despite it being related to increased risk of death from gastric cancer."

"This finding confirms earlier work, however, that gastric cancers are now uncommon in the United States," says Dr. Chen. "We also found that *H. pylori* was related to a reduced risk of stroke and lung cancer, and these effects were stronger for the cagA strain, suggesting its mixed role in human health," she says.

H. pylori, an ancient bacterium, lives in the mucous layer lining the stomach where, until recently, it survived for decades. More than half of the world's population harbor *H. pylori* in their upper gastrointestinal tract. Mainly transmitted in families, the bacterium is usually acquired before age 10. In developing countries *H. pylori* is still prevalent, but is vanishing in the developed world thanks to better sanitation and widespread use of antibiotics.

To better understand the relationship between *H. pylori* and the overall death rate, or all-cause mortality, the researchers analyzed data from 9,895 participants in the National Health and Nutrition Surveys (NHANES III), enrolled from 1988 to 1994. Test results for *H. pylori* and cagA were available on 7,384 subjects at the time of enrollment, and participants were followed until 2000.

There was no association of either *H. pylori*-positivity or cagA-positivity with all-cause mortality in the population, the researchers found. Participants with and without *H. pylori* experienced a similar risk of death from all causes. Consistent with past reports, a strong association was observed between *H. pylori* and gastric cancer mortality, according to the study. Individuals who were *H. pylori* positive were 40 times more

likely to die from [gastric cancer](#). The study also found that participants with cagA-positivity had a 55 percent reduced risk of deaths from stroke compared with their counterparts who were *H. pylori* negative/ cagA-negative. Participants with cagA-positivity also had a 45 percent reduced risk of deaths from lung cancer.

"The most interesting finding was that there is a strong inverse association with stroke which could be protective," says Dr. Blaser.

"There is some precedent for this and it is possible that the same cells (T reg cells) that *H. pylori* induces that protect against childhood asthma could be the protective agents, however, the findings need to be confirmed."

Provided by New York University School of Medicine

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