

Study identifies factors associated with eradication of bacteria linked to gastric cancer

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In an analysis of the results of interventions to eradicate the bacterium *Helicobacter pylori* (a risk factor for gastric cancer) in seven diverse community populations in Latin America, researchers found that geographic site, demographic factors, adherence to initial therapy and infection recurrence may be as important as the choice of antibiotic regimen in *H pylori* eradication interventions, according to a study appearing in the February 13 issue of *JAMA*.

"Gastric adenocarcinoma is the second leading cause of [cancer death](#) worldwide. Although [gastric cancer](#) rates are declining in some areas, the number of deaths is expected to increase over the coming decades due to growing and aging populations in high-incidence regions such as Latin America and eastern Asia. [Helicobacter pylori](#) infects more than half of the world's [adult population](#), and chronic infection with this bacterium is the dominant risk factor for gastric cancer, accounting for an estimated two-thirds of all cases globally," according to background information in the article. "The feasibility of large-scale programs is uncertain and success in specific populations will depend on the efficacy of the antibiotic regimen used and the risk of recurrent infection following eradication."

Douglas R. Morgan, M.D., M.P.H., of Vanderbilt Medical Center, Nashville, Tenn., and colleagues estimated risk of *H pylori* recurrence and assessed factors associated with successful eradication 1 year after

treatment with one of three regimens. The study included 1,463 participants, 21 to 65 years of age from 7 Latin American communities, who were treated for *H pylori* and observed between September 2009 and July 2011. Potential participants were selected using a census of households (Colombia, Costa Rica, Nicaragua), a large public clinic registry (Chile), or household recruitment (Honduras and 2 sites in Mexico). Participants were randomized to 1 of 3 treatment groups: 14-day lansoprazole, amoxicillin, and clarithromycin (triple therapy); 5-day lansoprazole and amoxicillin followed by 5-day lansoprazole, clarithromycin, and metronidazole (sequential); or 5-day lansoprazole, amoxicillin, clarithromycin, and metronidazole (concomitant).

Of the 1,133 participants who were urea breath test (UBT; a diagnostic procedure used to identify the presence of *H pylori*) negative following initial treatment, 1,091 had a 1-year UBT result, of whom 125 had become UBT positive, a recurrence risk of 11.5 percent. The recurrence risk ranged from 6.8 percent in Costa Rica to 18.1 percent in Colombia. The researchers found that recurrence at 1 year was significantly associated with study site, number of children in the household, and nonadherence to therapy, but not with treatment assignment.

In the primary analysis of treatment effectiveness based on the 1,340 participants with definitive 1-year UBT results, the estimated 1-year eradication success rate was 80.4 percent for triple therapy, 79.8 percent for sequential therapy, and 77.8 percent for concomitant therapy. Overall effectiveness was 79.3 percent.

"In a single-treatment course analysis that ignored the effects of re-treatment, the percentage of UBT-negative results at 1 year was 72.4 percent and was significantly associated with study site, adherence to initial therapy, male sex, and age. One-year effectiveness among all 1,463 enrolled participants, considering all missing UBT results as positive, was 72.7 percent," the authors write.

"In our current study, adherence, study site, sex, and age were significantly associated with the probability of a successful 1-year outcome. From the public health perspective, a 'one size fits all' intervention strategy may not be optimal."

"Ongoing research initiatives are needed, given the expected increase in the gastric cancer burden in Latin America over the next 2 decades, evidence that [H pylori](#) infection is the dominant risk factor, and evidence that eradication reduces gastric cancer risk," the researchers conclude.

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