

Cholesterol boosts antibiotic resistance in *H. pylori*

June 17 2011

(PhysOrg.com) -- New research suggests that cholesterol boosts resistance in *Helicobacter pylori* both to many antibiotics and to the endogenous antimicrobial peptide, LL-37. A complete understanding of the pathway of cholesterol uptake might lead to novel strategies thwarting *H. pylori* by blocking that pathway, says corresponding author David McGee of Louisiana State University. The research is published in the June 2011 issue of the journal *Antimicrobial Agents and Chemotherapy*.

H. pylori infects one third of Americans, causing gastritis and [peptic ulcers](#), and costing \$10 billion annually. Antibiotic therapy is recommended, but resistance, often leading to treatment failures, is becoming increasingly common, even following the now-standard triple drug therapy.

In the study, the investigators grew *H. pylori* in the presence or absence of cholesterol, and treated the bacteria with different classes and concentrations of antibiotics, comparing the populations of surviving bacteria. “We found that *H. pylori* grown with cholesterol displayed a very dramatic increase in resistance to many antibiotics, bismuth, and to LL-37,” says McGee.

“It would be important to learn whether we can manipulate the ability to clear *H. pylori* infections in animals and humans by lowering cholesterol either through dietary means or cholesterol-lowering drugs (statins),” says McGee. “There are already data showing that *H. pylori*-infected

patients have elevated serum cholesterol levels, suggesting the bacteria manipulate the human host to produce more cholesterol.” Additionally, he says, a study of 500 patients found that taking statins lowered the severity of chronic gastritis, which is also caused by *H. pylori*. But some statins work, and others don’t, he says. And so far, no studies have combined antibiotics with statins. Thus, it is too soon to make recommendations to patients on their use to lower cholesterol, he says.

Interestingly, McGee says his research would not have been possible without the help of a high school student. Alika George, now an undergraduate at the University of Louisiana, collected some of the data, and urged McGee to include pepto bismol (bismuth) in the study, while taking part in a summer enrichment program for minority high school students, which was supported by Louisiana State University’s Office of Multicultural Affairs. “I feel it is vital to be supportive of programs like this to give students opportunities they otherwise would not have had,” says McGee.

More information: D.J. McGee, A.E. George, E.A. Trainor, et al., 2011. Cholesterol enhances *Helicobacter pylori* resistance to antibiotics and LL-37. *Antim. Agents Chemother.* 55:2897-2904.

Provided by American Society For Microbiology

Citation: Cholesterol boosts antibiotic resistance in *H. pylori* (2011, June 17) retrieved 25 April 2024 from <https://phys.org/news/2011-06-cholesterol-boosts-antibiotic-resistance-pylori.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.
