

Harmless bacteria may be helpful against meningococcal outbreaks

March 26 2015

Nasal drops of harmless bacteria can inhibit a related bug that sometimes causes meningococcal disease, according to new findings published online in *Clinical Infectious Diseases*. The study—conducted among college students, a group at higher risk for this often serious illness—suggests a new approach that could help suppress outbreaks of the disease, if supported by future research.

Meningococcal disease is caused by *Neisseria meningitidis*, which can infect the lining of the brain and the [spinal cord](#), causing meningitis. Strains of the bacteria can also cause serious bloodstream infections. But *N. meningitidis* can also live silently in a person's nose and throat, without illness. These "colonized" carriers can spread the pathogen to others through close contact.

In the study, researchers placed drops containing low doses of *Neisseria lactamica*, a related but harmless bacterial strain, into the noses of 149 healthy university [students](#) in the United Kingdom. A control group of 161 students received drops of saline instead. Nose swabs were taken at regular intervals over six months and tested for both types of bacteria.

Among students who received the *N. lactamica* drops and became colonized, the [harmless bacteria](#) appeared to prevent *N. meningitidis* from colonizing the students' throats. The "good" bacteria also displaced the worrisome pathogen in those who were already carrying it when the study began. The effect was seen after just two weeks, when the number of students carrying *N. meningitidis* in their upper airway dropped by 9.5

percent among those who were also colonized by *N. lactamica* using the drops. The effect lasted for at least four months.

"It's the first time that anyone has taken a bug—a friendly bacterium—and has shown that it changes the way that you can become colonized by the meningitis bacterium, *Neisseria meningitidis*," said study author Robert C. Read, MD, of the University of Southampton in the United Kingdom, who described the study as a "proof of principle" with intriguing implications.

Meningococcal vaccines induce high levels of antibodies in the blood to ward off infection, but current vaccines also limit "carriage" of *N. meningitidis* in the throat, preventing its spread from one person to another. The drop in carriage seen in this study was faster and more persistent than that seen after vaccination. The harmless bacterial strain was also active against more varieties of *N. meningitidis*.

The findings suggest that *N. lactamica* may one day help suppress meningococcal outbreaks as a bacterial medicine. Before then, Dr. Read noted, more research is needed, including to confirm that *N. lactamica* is entirely harmless in a wide population and that it does not change genetically while living in the airway. Determining how to improve carriage rates of *N. lactamica* also will be necessary before the approach can advance, Dr. Read said.

Fast Facts

- Meningococcal disease is caused by *Neisseria meningitidis*, bacteria that can infect the lining of the brain and spinal cord, causing meningitis. It can also cause serious bloodstream infections.
- The study findings suggest a possible new approach for preventing outbreaks of the disease using a related but harmless

type of bacteria, *Neisseria lactamica*, to displace the disease-causing pathogen in the upper airway.

- More research is needed to support the findings and refine the approach before it can be used in a real world setting to prevent disease.

Provided by Infectious Diseases Society of America

Citation: Harmless bacteria may be helpful against meningococcal outbreaks (2015, March 26) retrieved 14 May 2024 from <https://medicalxpress.com/news/2015-03-harmless-bacteria-meningococcal-outbreaks.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.