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Spread of Antibiotic-Resistant 'Superbugs' Causes Global Concerns
By: Talea Miller

A new gene mutation that can make bacteria into "superbugs" capable of resisting almost all antibiotics is spreading from India and Pakistan and popping up around the globe, according to British researchers.

The Lancet medical journal published a paper Wednesday tracking the spread of the mutation, which it says is resistant to some of the most-advanced, last-line antibiotics available. Only two antibiotics were found to be effective against bacteria with the gene, and no new antibiotics currently in the research pipeline would combat it.

"The potential of NDM-1 to be a worldwide public health problem is great, and coordinated international surveillance is needed," the Lancet authors wrote. The paper also said the mutation could "potentially herald the end" of some antibiotic classes.

"I think the emergence of these multi-drug-resistant organisms is of great concern," said Henry Blumberg, a professor of medicine and epidemiology at Emory University School of Medicine not connected with the study. "We are getting close to the post-antibiotic era ... we are going to have organisms that are resistant to all the antibiotics we have, and essentially be untreatable."

While only three cases of this mutation have been reported in the United States, all in patients who received medical care in India, very similar multi-drug-resistant organisms are seen "all the time, every day" in U.S. hospitals said Larry Baddour, chair of the division of infectious disease at Mayo Clinic in Rochester, Minn.

"We have many multi-drug-resistant bacteria in this country," Baddour said. "This is more of the same, unfortunately it's just going to make our jobs even more difficult in trying to cure infections."

The mutation, NDM-1, is increasingly common in Pakistan and India, which is a popular destination for medical tourism, especially elective surgeries like cosmetic procedures, because of the more affordable healthcare costs.

The Lancet found 37 instances in the United Kingdom, also among patients who received medical treatment oversees, and cases have been detected in Australia, Canada, the Netherlands and Sweden.

India is rejecting the claims linking the mutation to medical treatment there, calling it "malicious propaganda," reported the BBC.

The gene can be swapped between different bacteria and has been found most widely in E. coli bacteria that can cause pneumonia and urinary tract infections.

"It's a very mobile element that is transmissible and it can go from organism to organism," said Trish Perl, a professor of infectious disease at Johns Hopkins University School of Medicine and the hospital epidemiologist for the Johns Hopkins Hospital. She said this type of drug resistance is a big concern has been on medical professionals' radar for about four years.

"You could in theory become a carrier," Perl said. "In the [gastrointestinal tract] with all these different kinds of bugs in the same place they are sharing genetic elements back and forth constantly."

With no promising new antibiotics in the research pipeline to take up the multi-drug-resistance fight, Baddour said it is crucial that more funding and focus be placed on antibiotics by drug companies.

Antibiotics are less profitable drugs for manufacturers because they are for short-term use only.

Stronger controls on use of antibiotics and preventative measures to stem the spread of drug-resistant bugs will both be necessary in the meantime, Blumberg said. Perl agreed acting proactively for prevention will be crucial.

"This has to be treated as an emerging problem across the world," she said, "we all have to be vigilant."

http://www.pbs.org/newshour/rundown/2010/08/gene-mutation-causing-antibiotic-resistance-in-bacteria-spreads.html