

New 'Super Bug' (New Delhi metallo-beta-lactamase-1) really spreads from India, Pakistan?

"Health tourists" flocking to south Asia have carried a new class of antibiotic-resistant superbugs to Britain, researchers reported on 11.08.2010, warning that the bacteria could spread worldwide.

This so called NDM-1 gene was first identified last year by Cardiff University's Timothy Walsh in two types of bacteria — **Klebsiella pneumoniae** and **Escherichia coli** — in a Swedish patient admitted to hospital in India. NDM-1 stands for **New Delhi metallo-beta-lactamase-1**.

Worryingly, the new NDM-1 bacteria are resistant even to carbapenems, a group of antibiotics often reserved as a last resort for emergency treatment for multi-drug resistant bugs.

Researchers said the bugs had been brought into Britain by patients who travelled to India or Pakistan for cosmetic surgery. "If these infections were allowed to continue without appropriate treatment, then certainly one would expect to see some sort of mortality," Walsh, a microbiology professor, told BBC radio. "It's going to be very difficult to treat the infections once the patients present with these types of bacteria. You won't get well."

In the new study, led by Walsh and Madras University's Karthikeyan Kumarasamy, researchers set out to determine how common the NDM-1 producing bacteria were in South Asia and Britain, where several cases had turned up. Checking hospital patients with suspect symptoms, they found 44 cases (1.5 per cent) of those screened in Chennai, and 26 (eight per cent) of those screened in Haryana. They likewise found the superbug in Bangladesh and Pakistan, as well as 37 cases in Britain, some in patients who had recently returned from having cosmetic surgery in India or Pakistan. "India also provides cosmetic surgery for other Europeans and Americans, and it is likely that NDM—1 will spread worldwide," said the study, published in The Lancet.

NDM-1 was mostly found in *E. coli*, a common source of community-acquired urinary tract infections, and *K. pneumoniae*, and was impervious to all antibiotics except two, tigecycline and colistin.

India rejects superbug linkage

India has reacted strongly to a study linking a multiple drug-resistant superbug detected in Britain to India and said the bacteria are not a public health threat. It said Indian hospitals were safe as a number of such bacteria survived in nature and were reported from several other countries.

The conclusions of the study are “loaded with inference” that the antibiotic-resistant organism possibly originated in India, an official statement by the Ministry of Health and Family Welfare said in New Delhi on 12.08.2010. “While such organisms may be circulating more commonly in the world due to international travel, to link it with the safety of surgery hospitals in India and citing isolated examples to show that India is not a safe place to visit due to the presence of such organism in Indian environment are wrong,” V.M. Katoch, Director-General, Indian Council of Medical Research, said.

Several authors had declared a conflict of interest in the publication of the study. The study was funded by the European Union and two pharmaceutical companies — Wellcome Trust and Wyeth — that produce antibiotics for treatment of such cases, the statement said.

The government also strongly objected to the naming of this enzyme as New Delhi metallo beta lactamase -1 (NDM-1) and refuted the conclusion that hospitals in India were not safe for treatment.

Though not disputing the validity of the study, he said the conclusions were “unfair” and “scary.” The conclusions and interpretations of the study were wrong, scientifically invalid and aimed at creating a scare.

Madras University's Karthikeyan Kumarasamy from Erode had his elation set back slightly at the interpretation the media had given his article. *“That it was transmitted from India is hypothetical. Unless we analyse samples from across the world to confirm its presence, we can only speculate,”* he said.

Researchers crack open secret of superbug’s resistance

Scientists have stumbled upon a central processing unit (CPU) of a superbug's weaponry which will provide new options to fight back and disable the virulent bacteria.

A team from the McMaster University's Institute for Infectious Disease Research has revealed that a small chemical, made by the superbug *Staphylococcus aureus* and its drug-resistant forms, determines this disease’s strength and ability to infect.

The bacteria are the cause for a wide range of difficult-to-treat human infectious diseases such as pneumonia, toxic-shock syndrome and flesh-eating diseases. It is known as the superbug as it has become increasingly resistant to antibiotics and especially troublesome in hospitals.

“We've found that when these small chemicals in the bacteria are shut down, the bacteria is rendered non-functional and non-infectious,” said Nathan Magarvey, principal study investigator and assistant professor of biochemistry at McMaster. “We're now set on hacking into this pathogen and making its system crash.” These findings appeared in *Science*.

To identify these “pathogen small molecule CPUs”, the researchers used cutting-edge chemical mining tools to reveal the molecular wiring associated with their formation.

Then, to uncover its function, the McMaster scientists shut off its synthesis, showing that the deadly pathogens had been tamed and were unable to burst open red blood cells, said a McMaster's statement.

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Courtesy: The Hindu, India's leading Daily
