Metallo β-lactamases is the name given to certain enzymes found in gram negative bacteria belonging to Enter-obacteriaceae which confers resistance to all β-lactam antibiotics including carbapenems except monobactams. They belong to Ambler molecular class B and Bush-Jacoby-Medeiros Group 3.\(^1,2\) Resistance to carbapenems due to production of metallo β-lactamases in Gram Negative organisms is an increasing international public health problem. *Escherichia coli* and *Klebsiella pneumoniae* are the most common bacteria among the Enterobacteriaceae producing these enzymes developing multidrug resistance including β-lactam carbapenems like Imipenem, Meropenem, Doripenem and Ertapenem. These are the antibiotics in reserve used presently for the multidrug (fluoroquinolones, aminoglycosides and cephalosporins) resistance bacteria. But of late these bacteria have also been found producing metallo β-lactamases \(^3\) and have become resistant to even this group of antibiotics and are referred to as superbugs because of their killer potential.

It is a matter of serious concern because treatment options of infections caused by pathogens producing these β-lactamases are very limited and confined to few antibiotics like Tigecyclin, Aztreonam and Colistin.

New Delhi Metallo β lactamase-1 (NDM-1) name was given by Yong et al\(^4\) to a novel β lactamase first produced by a strain of *Klebsiella pneumoniae* which was first isolated in Swedish national in 2008 who fell ill with a urinary tract infection during his stay in a hospital in India.\(^5\) The infection in Swedish patients was unsuccessfully treated in a New Delhi hospital and after the patient’s repatriation to Sweden a Carbapenem resistant *Klebsiella pneumoniae* strain bearing the novel gene was identified. The gene coding for this enzyme *bla_{NDM-1}* was found in the resistance carrying region of the integron. The authors concluded that the new resistance mechanism clearly arose in India, but there are few data arising from India to suggest how wide spread it is. In May 2010 a case of infection with *E.Coli* expressing NDM-1 was reported in Coventry in the United Kingdom in a man who had visited India 18 months ago and undergone dialysis. This strain was fully resistant to all antibiotics used but susceptible to Tigecycline and Colistin.\(^6\) There is also report of an isolate from a resident of Australia of Indian origin who had traveled to Punjab in late 2009.\(^7\)

During January–June 2010 Centres for Disease Control and Prevention reported three Enterobacteriaceae isolates carrying the newly described resistance mechanism NDM-1 from 3 US states. The 3 isolates were from patients who received recent medical care in India.\(^8\)

According to Eurosuvveillance report high rates of metallo beta lactamase producing *Klebsiella pneumoniae* carrying plasmids and coding for the VIM metallo carbapenamase have disseminated in Greece in 2008.\(^9\)
In August 2010 the first reported death in a Belgian man who had become infected while being treated in a hospital in Pakistan was caused by NDM-1 enzyme expressing bacteria despite being administered Colistin.\(^{10}\)

Besides being produced by *E. Coli* and Klebsiella metallo β-lactamases are also produced by *Citrobacter freundii*, *Enterobacter cloacae*, *Morganella morganii*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. According to scientific article published online in Lancet August 18, 2010 by Kumarsamy Toleman, Walash et al showed 44 isolates with NDM-1 have been isolated in Chennai, 26 in Haryana, 37 in UK and 73 in other cities in India and Pakistan.\(^{6}\) Some of the UK isolates were considered as having origin in India as they were isolated from patients who had visited India for medical treatment in the recent past. 47 isolates (33) from Chennai and (14) from Haryana were randomly chosen for investigation with PCR and DNA probe, typing did not identify common strain types of *E. coli* or *K. pneumoniae* between the Indian subcontinent and the UK or between North and South India.\(^{6}\) The greatest danger from these strains is that the drug resistant genes can be transferred by mutation or by plasmids and spread to other bacteria and hence to global population causing a serious health concern. This leads to increased financial burden for patients undergoing treatment for infections caused by these superbugs.

Since many of the British patients carrying NDM-1 Beta lactamases have traveled to India for hospital treatment including cosmetic surgery, the mere presence of NDM-1 does not give clues to its origin in India as there is paucity of enough scientific evidence. The study in Lancet, has been funded by companies like Welcome, Wyeth and European Union and to promote their antibiotic like Tigecylin and it may cause damage to medical tourism in India.\(^{6}\) It is certain that the *bla*\(^{\text{NDM}}\) is wide spread in environment and can readily spread from one bacterial strain to other and cause serious drug resistant infection in global population. Health Protection Agency in UK has issued a National Resistance Alert 3 notice scaring British nationals to travel to India.\(^{5}\) A recent editorial by Abdul Ghafur highlights the widespread non prescription use of antibiotics in India, leading to huge selection pressure and predicts NDM-1 problem can get worse.\(^{11}\)

In conclusion, the threat from infection caused by these bacteria harbouring New Delhi Beta metallo B-lactamases is very much similar to that produced by methicillin-resistant *staphylococcus aureus* (MRSA) causing drug resistance infection seen 10 years ago. But control has been achieved with Vancomycin and through infection control practices. Similarly a control can be achieved on this bacteria producing this enzyme by following CDC infection control guidelines regarding carbapenem-resistant Enterobacteriaceae. Also setting up a regulatory body in India to monitor point prevalence surveys or active surveillance testing among high risk patients. Antibiotic policy and guidelines do exist in various hospitals in India and need refubration against a drive for emergence and spread of multi-drug resistance in the bacteria. In addition the unethical and irresponsible marketing practices of pharmaceutical industry should be monitored. National Health Scheme (NHS) of UK should not see a cause of concern if British nationals are coming to India for cosmetic or other surgeries and biased by Indian origin of this strain.

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