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TB drug makes patient more vulnerable

Kalyan Ray

NEW DELHI: A common medicine against tuberculosis, being used in the standard therapy for years can actually make a patient more vulnerable to the disease causing bacteria, scientists have claimed.

Isoniazid is one of the medicines, used in the TB therapy called directly observed treatment short-course (DOTS). Although the therapy is effective, there are several known disadvantages including prolonged and complicated drug regimen and toxicity of some of the drugs.

Armed with animal experiment results, a group of Indian researchers have now showed isoniazid treatment also severely dampen the immune response to the tuberculosis causing bacteria, rendering the animals vulnerable to re-infection.

Dr Das and his students in JNU.

India has the highest TB burden, accounting for a quarter of all new TB cases. More than 370,000 people die of TB in India every year, which translates to 1,000 TB deaths per day. "In spite of DOTS and effective drugs, TB remains a public health problem in India as the incidence of TB has remained unchanged. The MDR TB cases are rising in the country" said Rajesh Chawla, senior consultant on respiratory medicine at Indraprastha Apollo Hospital, Delhi.

The new research opens up yet another window to understand the complexity of controlling TB in India, which spends crores on the government backed revised national TB control programme.

"The drug is used for entire period of the treatment time, because it is considered to be safe. It's a surprise that it silently does harm in addition to bacterial clearance," Gobardhan Das, a professor at Jawaharlal Nehru University told *Deccan Herald*.

Das and his colleagues from the University of Kwazulu-Natal, Durban; International Centre for Genetic Engineering and Biotechnology, Delhi, University of Calcutta and Vanderbilt University in the USA demonstrated the mechanism through which the medicine triggers the harmful effects. The drug induces automatic suicides – known as apoptosis – in a key class of immune cells that fight against the dreaded bug.

"Animals that are previously treated with isoniazid exhibit increased susceptibility to TB reactivation and re-infection. In light of these findings, current therapeutic regimens for TB may need to be revised," the researchers reported in a recent issue of the *Journal of Biological Chemistry*.

Other scientists, however, wanted more proof. "It is an interesting observation though it is pertinent to note that TB infection at the first place is perceived to be a consequence of weak immune system," said Rajesh Gokhale, who heads the Institute of Genomics and Integrative Biology, Delhi and is not connected to the research.

"As it is becoming clear that a balance of immune activation is the key to pathogen clearance as well future immunity, this research is significant and requires careful further introspection," Gokhale added.

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