TB drug may bring relief to diabetics

REPOSITIONING STRATEGY | City researchers find rifampicin shows high glycation inhibition levels

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A TEAM of researchers from the National Chemical Laboratory (NCL) and National Centre for Cell Sciences (NCCS), Pune led by Dr. Mahesh J Kulkarni have found that rifampicin, an anti-tuberculosis drug, can now be used for dealing with complications related to diabetes. The study has been recently published in the second issue of the European Journal of Mass Spectroscopy.

Kulkarni and his team, including Sandeep B Golegaonkar, Hemangi S Bhonsle and Ramanamurthy Boppana, have found that rifampicin shows higher glycation inhibition, a major intervention strategy in diabetic complications. Speaking to *The Indian Express*, Kulkarni said, "Scientists at the NCCS are now involved in the animal and clinical trial of the study. We are also working on the repositioning of various other existing drugs. But the Patent Act of India does not allow us to patent this particular property of rifampicin as the original drug has already been patented."

Repositioning of drugs i.e. finding new use for an already existing drug has become an important area of research in the pharmaceutical industry in the last few years. Recent examples of successful repositioning by drug companies include Viagra and Thalidomide. A significant advantage of drug repositioning is that the repositioned drug has already passed toxicity tests and its safety profile is known.

A team of researchers from the National Chemical Laboratory and National Centre for Cell Sciences have been working on the project

Consultant diabetologist and endocrinologist at the Jehangir Hospital, Dr Mohan Magdum said that most of the diseases with problems of tissue damage including diabetes result in glycation of body proteins leading to increase in tissue diameter. He said, "If a glycation inhibitor can be used, it should logically help in controlling the long term damage of such diseases and can go a long way in the treatment of diabetes."

"An additional therapeutic property of rifampicin as a glycation inhibitor is a very significant development as rifampicin is already an approved drug for the treatment of tuberculosis, and can thus be repositioned as a potent anti-glycating molecule for the treatment of diabetic complications, ageing, Alzheimer's diseases and Parkinson's disease", said PK Ingle, head of the Publication and Science Communication Unit, speaking on behalf of the NCL.

However, Dr Shreerang Godbole, another diabetes expert at the Jehangir Hospital, is sceptical about whether the finding will hold good for clinical trials also. "The finding is promising. However, the drug must demonstrate the same effect in animal models, human volunteers and finally patients with type 2 diabetes. Demonstrating an effect in the laboratory, though a necessary first step, does not automatically translate into clinical use."In this study, Kulkarni has proposed that high blood sugar levels due to diabetes lead to the development of complications in vital body, which arise because of a non-enzymatic reaction between glucose and proteins. Glycation of proteins lead to the formation of Advanced Glycation End products (AGEs).

1. Article in Indian Express dated 23rd May, 2010
2. http://www.indianexpress.com/news/tb-drug-may-bring-relief-to-diabetics/622543/0