Tuberculosis (TB) drugs helps Diabetes patient

Due to diabetes, blood sugar level increases leading to the development of complications in human body. This happens because of a non-enzymatic reaction. Non-enzymatic means, the protein or the lipid molecule bonds with the sugar molecule such as fructose or glucose without controlling the action of an enzyme called as glycation. This reaction takes place between glucose and proteins contained in the body. Glycation of proteins lead to the formation of Advanced Glycation End products (AGEs).

Therefore, the sugar level in a diabetes patient needs to be monitored and kept at a safe level.

When the blood sugar level rises, Glycation may occur. If this occurs inside the body it is termed as endogenous glycation and when it occurs outside the body it is termed as exogenous glycation. Much of the early laboratory research work on fructose glycations, use inaccurate analysis techniques that cause underestimation of the importance of fructose in glycation.

The drug rifampicin is already patented and therefore the Patent Act of India does not allow to re-patent it, so it can only be repositioned (the property of the drug can be used for a different application) as a potent anti-glycating molecule for the treatment of diabetic complications. It can be used to treat ageing, Alzheimer's diseases and Parkinson's disease.

Repositioning of drugs that is, 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.

It is observed by Dr. Mohan Magdum, consultant diabetologist and endocrinologist, Jehangir Hospital, that most of the diseases with problems of tissue damage including diabetes result in glycation of body proteins leading to increase in tissue diameter. According to him, "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."

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Dr. Mahesh Kulkarni and his team found that rifampicin shows higher glycation inhibition, a major intervention strategy in diabetic complications. Scientists at the NCCS (National Centre for Cell Science) are now involved in the animal and clinical trial of the study. CSIR-NCL is also working on the repositioning of various other existing drugs.

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