Oral anti diabetic substance discovered

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Research in the Department of Biology at the Faculty of Science and Science Education of the University of Haifa has discovered a substance that may become an oral treatment for diabetes and its complications. The substance, which is derived from yeast, is called Glucose Tolerance Factor (GTF).

"The research is now at the stage where the substance has been successfully tested on diabetic rats and was found to reduce sugar and lipids in the blood of the treated animals. The next stage of the research is to evaluate GTF efficacy in humans," said Dr. Nitsa Mirsky, who is conducting the research.

Diabetes is recognized as a major global health problem. Diabetes affects 5%-10% of the population in developed countries, while in developing countries the disease has been recently declared an "epidemic". Diabetics suffer from lack of insulin or a deficiency in the body's ability to respond to insulin. Diabetes is a chronic illness with no cure and can lead to kidney failure, heart problems, strokes or blindness, as well as other complications. Approximately 50% of diabetics are treated with insulin, which has to be injected, while the rest are treated with oral medications which tend to be more difficult to regulate and often have side effects.

According to Dr. Mirsky, there are a number of problems with insulin treatment; the main one being that insulin is not always an effective treatment, due to gradual development of resistance to the hormone.

An additional problem is that insulin doses are not necessarily synchronized with the patient's physical activities or eating intervals. A large dose of insulin injected before a diabetic patient eats, for example, can cause a sudden drop in blood sugar (hypoglycemia) that can result in a diabetic coma and ultimately death. In addition, the fact that insulin must be injected is in and of itself difficult for many patients.

This current research was conducted on two levels: on diabetic rats and on the molecular-cell level. The results indicate that GTF acts similarly to insulin in the rats, lowering the level of glucose, and of LDL-cholesterol, (the "bad" cholesterol), and raising the level of HDL-cholesterol (the "good" cholesterol). GTF inhibited oxidation processes that can cause atherosclerosis and result in further complications of the disease like strokes and heart attacks.

Moreover, when GTF is given at early stage of the disease, it could prevent or delay renal complications. GTF also helped to prevent cataracts and retinal damage. It was also found that GTF improves the effectiveness of injected insulin. Further research is needed in order to find a combined regimen of insulin and GTF as a potential treatment for diabetes.

Source: University of Haifa