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Diabetes drug shows promise against multiple sclerosis (w/Podcast)

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A drug currently FDA-approved for use in diabetes shows some protective effects in the brains of patients with relapsing remitting multiple sclerosis, researchers at the University of Illinois at Chicago College of Medicine report in a study currently available online in the *Journal of Neuroimmunology*.

In a small, double-blinded clinical trial, patients with relapsing remitting multiple sclerosis were assigned to take pioglitazone (a drug commercially known as Actos used to treat type-2 diabetes) or a placebo. Patients continued their normal course of therapy during the trial.

Standard neurological tests were done initially, as were MRI scans to provide baseline values for lesions typically seen in MS patients. The patients were evaluated every two months, and blood samples were taken. Repeat MRI scans were done after five months and again after one year.

Patients taking pioglitazone showed significantly less loss of gray matter over the course of the one-year trial than patients taking placebo. Of the 21 patients who finished the study, patients taking pioglitazone had no adverse reactions and, further, found taking pioglitazone, which is administered in an oral tablet, easy.

"This is very encouraging," said Douglas Feinstein, research professor of anesthesiology at UIC. "Gray matter in the brain is the part that is rich in neurons. These preliminary results suggest that the drug has important

effects on neuronal survival."

Feinstein's lab has been interested in the class of drugs called thiazolidinediones, or TZDs. Several TZDs have been approved for use in the treatment of type-2 diabetes because of the drugs' effect on the body's response to insulin.

The researchers focused on pioglitazone because of its known anti-inflammatory effects, Feinstein said. They used primary cultures of brain cells to show that pioglitazone reduced the production of toxic chemicals called cytokines and reactive oxygen species. These molecules are believed to be important in the development of symptoms in MS.

Feinstein's lab proceeded to test pioglitazone in an animal model of MS. They and others showed that pioglitazone and other TZDs "can significantly reduce the clinical signs in mice with an MS-type disease," said Feinstein.

"More importantly, when mice who are already ill are treated with pioglitazone, the clinical signs of the disease go away," he said. "We were able to induce almost complete remissions in a number of mice."

"We are now working to determine the mechanisms to explain the protective effect on neurons that we see in our studies," said Feinstein. "We hope to expand into a larger trial to confirm these preliminary results."

Source: University of Illinois at Chicago (news : web)