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Insulin protects brain from Alzheimer's - US study

Mon Feb 2, 2009 10:00pm GMT

By Julie Steenhuisen

CHICAGO, Feb 2 (Reuters) - Insulin appears to shield the brain from toxic proteins associated with Alzheimer's disease, U.S. researchers said on Monday, supporting a theory that Alzheimer's may be a third form of diabetes.

And they said GlaxoSmithKline's (GSK.L: [Quote](#), [Profile](#), [Research](#)) diabetes drug Avandia, or rosiglitazone, which increases sensitivity to insulin, appeared to enhance this protective effect.

"Our results demonstrate that bolstering insulin signaling can protect neurons from harm," William Klein of Northwestern University, whose study appears in the Proceedings of the National Academy of Sciences, said in a statement.

Klein said the findings support a new idea that Alzheimer's is a type of diabetes of the brain.

"In Type 1 diabetes, your pancreas isn't making insulin. In Type 2 diabetes, your tissues are insensitive to insulin because of problems in the insulin receptor. Type 3 is where that insulin receptor problem is localized in the brain," Klein said in a telephone interview.

In some people, this can occur with age, he said.

"As you get older, some individuals start to have less effective insulin signaling, including in the brain," he said, making the brain more vulnerable to toxins that cause Alzheimer's disease.

Large sticky plaques of amyloid beta protein are a hallmark of Alzheimer's, which causes memory loss, confusion, the inability to care for oneself and eventually death.

Recent studies by Klein and others have suggested that short strands of the protein, known as amyloid beta-derived diffusible ligands or ADDLs, attack memory-forming brain cells, causing memory loss.

Klein and colleagues treated rat nerve cells with insulin. "It blocked all of the effects of ADDLs," Klein said.

The effect was amplified when they added the drug rosiglitazone, which increases insulin sensitivity.

Several studies have found that diabetics have a higher risk of getting Alzheimer's than the general population.

Last July, researchers at Mount Sinai Medical Center in New York reported that diabetics who take insulin plus a diabetes pill have a lower risk of developing Alzheimer's than diabetics who only take insulin.

That study included a range of anti-diabetic medications, including an older

pill known as a sulfonylurea.

Klein said the findings suggest that measures to protect people from diabetes -- including a healthy diet and exercise -- are also important for avoiding Alzheimer's disease.

In a separate study of more than 6,500 people, U.S. researchers found that having more education does little to slow progression of Alzheimer's disease once people show signs of becoming forgetful.

"While education is associated with the memory's ability to function at a higher level, we found no link between higher education and how fast the memory loses that ability," said Robert Wilson of Rush University Medical Center in Chicago, whose study appears in the journal *Neurology*.

Alzheimer's affects 5.2 million people in the United States and 26 million globally, according to the Alzheimer's Association. (Editing by Maggie Fox and Vicki Allen)

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