

Tulane Research Could Help Elderly Veterans Avoid Neurodegenerative Disease

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New results from Tulane University suggest that long-term therapy with metformin reduced the incidence of neurodegenerative diseases among elderly veterans with diabetes, although this association was not observed with a less than 2-year exposure to the drug.

Researchers presented the study at the [American Diabetes Association \(ADA\) Scientific Sessions](#).

According to study background, metformin therapy in elderly patients may be associated with neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease, Huntington's disease, and dementia, but the direction of influence in practice remains controversial. To better understand this clinical conundrum, researchers evaluated the effect of length of metformin exposure on neurodegenerative diseases among veterans with diabetes aged >50 years using the Veterans Affairs database from 2004 to 2010.

The study was a collaboration between the Department of Health Policy and Management (HPM), in the Tulane University School of Public Health and Tropical Medicine, and the Section of Endocrinology, in the Tulane University School of Medicine.

In all, the study included 6,026 patients (age, 63.2 ± 10.9 years) with a median of 5.2 years of follow-up. Patients were excluded if they had neurodegenerative diseases at baseline; other mental disorders; or were on insulin two-thirds of the study period or less.

According to results, the incidence rate of neurodegenerative diseases was significantly lower for patients receiving metformin treatment compared with those not receiving the therapy (1.38 vs. 2.30 per 100 person-years; $P<.0001$). After adjusting for several baseline characteristics—age, gender, race, tobacco use, obesity, hemoglobin A1c, other anti-diabetes agents, and medical history—long-term metformin treatment reduced the risk for neurodegenerative diseases compared with no metformin use.

Specifically, compared to no metformin treatment, during the first year of metformin therapy, risk for neurodegenerative diseases increased by 16% ($P=.61$); however, the risk decreased by 22% at 2 years ($P=.08$), 38% from 2 to 4 years ($P=.0026$), and 78% for >4 years ($P<.0001$), according to a Cox regression model.

“Long-term metformin therapy has [a] potentially protective effect on the incidence of [neurodegenerative diseases] among elderly veterans with type 2 diabetes; however, less than 2-year metformin exposure did not show significant influence,” researchers concluded in the abstract.

The main authors on the page were Qian Shi, doctoral student in the HPM Department, Dr. Lizheng Shi, Regents Professor in the GHMP Dept., and Dr. Vivian Fonseca with the Tulane University School of Medicine.