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Strict blood pressure control won't stem mental decline, study says

By Melissa Healy

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Discouraging news for diabetics who are keen to ward off memory problems and keep their brains in peak condition: New research has found that using medication to aggressively drive down blood pressure or improve lipid levels does not do more than standard therapy to stem the decline in cognition that's common among such patients. In fact, aggressively lowering systolic blood pressure may accelerate brain shrinkage, which is a hallmark of dementia, the new study found. advertisement

The [findings](#), published Monday in JAMA Internal Medicine, emerge from a large and long-running clinical trial aimed at figuring out what measures might improve the health prospects of people at highest risk of cardiovascular disease. In addition to their higher likelihood of having heart attacks and strokes, patients with Type 2 diabetes are about 50% more likely than those without the metabolic disorder to suffer dementia.

And cognitive impairment is especially likely if a person's blood sugar is poorly controlled or if the patient has high blood pressure or worrisome cholesterol readings. All of these conditions are linked by poor vascular health, and without a robust blood supply, the brain will falter and decline.

Researchers from Johns Hopkins University used unpublished data to estimate that in people who got standard care for their hypertension or dyslipidemia, cognitive performance could be expected to drop by about 3 points over a 40-month period -- the length of time for which these participants were tracked and tested. At the outset, at the midpoint, and at the end of the study, each subject took the Digit Symbol Substitution Test, a broad gauge of the participant's attention, working memory and processing speed.

All the subjects fared better than researchers predicted -- the 40-month decline in scores across all participants ranged from 1 point to 2.5 points. But there were no differences in group averages: The average declines in those who got intensive cholesterol or intensive blood pressure treatment were not statistically different from those seen in subjects who got standard treatment for either condition.

Among the 503 subjects who had their brains scanned by MRI at the beginning and end of the 40-week study period, one group difference did stand out: In those whose hypertension was more rigorously lowered by medication, total brain volume declined significantly more than it did among those who got standard care for blood pressure or cholesterol.

These findings appear to underscore that when it comes to heading off dementia and other memory problems, earlier prevention is better than aggressive treatment that happens late in the game, after the brain has operated for years under compromised conditions. The subjects in the latest trial were 62 on average and had had Type 2 diabetes for a little more than a decade.

"This data shows that if you take older people and try to give them intensive control of a long-standing disease, it's not going to change anything," said University of Southern California neurologist Dr. Charles DeCarli, who was not involved in the latest study. "The most important message is that, if your aim is to

reduce dementia, it's not as useful to treat 70-year-olds aggressively as it is to reliably treat 40-year-olds."

Only 50% of hypertensives are diagnosed and treated, and just a quarter of those with high blood pressure have it optimally controlled, said DeCarli.

"If it's already starting to affect the brain at 40, how are you going to turn that damage around at 70?" asked DeCarli.

(See coverage of Dr. DeCarli's research here: [High blood pressure damages brain long before old age](#))

The latest study results come from the ACCORD trial (short for Action to Control Cardiovascular Risk in Diabetes), which set out to explore the strictly physical effects of different treatments. Researchers recruited 10,251 middle-aged and older subjects with Type 2 diabetes, and tested the effects of standard vs. aggressive blood-sugar control on the subjects' risk of heart attack, stroke and death.

About 2,977 participants in the ACCORD trial were also recruited into the MIND (Memory in Diabetes) trial. There, researchers aimed to gauge whether standard-vs.-aggressive treatments of the subjects' risk factors for cardiovascular disease (specifically hypertension and cholesterol) would reduce the expected slide in their cognitive performance.

The latest findings come on top of discouraging findings reported earlier. The ACCORD researchers in 2008 discontinued the trial's intensive glycemic intervention after they detected unusually high death rates in those whose blood sugar control was more aggressively controlled. The researchers also gleaned that participants assigned to get strict glycemic control suffered just as much cognitive decline as those who got standard treatment.

The ACCORD MIND trial, then, focused on the effects of intensive-vs.-standard treatment of hypertension and of intensive-vs.-standard treatment of dyslipidemia.

Standard high blood-pressure treatment sought to reduce a participant's [systolic blood pressure](#) reading (the higher, upper number that measures pressure in the arteries when the heart muscle contracts) to 140, whereas intensive treatment increased dosage or added medication in an effort to drive systolic blood pressure down to 120.

Standard lipid management used only a statin medication to lower levels of LDL cholesterol (the bad, artery-clogging form). But those in the study's aggressive therapy arm also got a fibrate medication to lower triglycerides and raise levels of HDL cholesterol (the good kind that protects against heart disease).

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