

Vasectomy may put men at risk for type of dementia

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Northwestern University researchers have discovered men with an unusual form of dementia have a higher rate of vasectomy than men the same age who are cognitively normal.

The dementia is Primary Progressive Aphasia (PPA), a neurological disease in which people have trouble recalling and understanding words. In PPA, people lose the ability to express themselves and understand speech. It differs from typical Alzheimer's disease in which a person's memory becomes impaired.

Sandra Weintraub, principal investigator and professor of psychiatry and behavioral sciences and of neurology at Northwestern's Feinberg School of Medicine, began investigating a possible link between the surgery and PPA when one of her male patients connected the onset of his language problem at age 43 to the period after his vasectomy.

At a twice-yearly Chicago support group for PPA patients Weintraub sees from around the country, the male patient rushed into the room and asked the men sitting there, "OK, guys, how many of you have PPA?" Nine hands went up.

"How many of you had a vasectomy?" he demanded next. Eight hands shot up.

Weintraub and her team of researchers surveyed 47 men with PPA who were being treated at Northwestern's Cognitive Neurology and

Alzheimer's Disease Center and 57 men with no cognitive impairment who were community volunteers. They ranged from 55 to 80 years old.

Of the non-impaired men, 16 percent had undergone a vasectomy. In contrast, 40 percent of the men with PPA had had the surgery.

"That's a huge difference," said Weintraub, director of neuropsychology in the Cognitive Neurology and Alzheimer's Disease Center. "It doesn't mean having a vasectomy will give you this disease, but it may be a risk factor to increase your chance of getting it."

In addition, the men who had undergone a vasectomy developed PPA at a younger age (58 years) than men with PPA who hadn't had one (62 years.)

While PPA robs people of their ability to speak and understand language, an unusual twist of the disease is patients are still able to maintain their hobbies and perform other complicated tasks for a number of years before other symptoms develop. Some people garden, build cabinets and even navigate a city subway system. By contrast, Alzheimer's patients lose interest in their hobbies, family life and may become idle. As PPA progresses over a number of years, however, patients eventually lose their ability to function independently.

Preliminary evidence from the study also seemed to connect another form of dementia to a vasectomy. In a smaller group of 30 men with a dementia called frontotemporal dementia (FTD,) 37 percent had undergone a vasectomy. The earliest symptoms of FTD are personality changes, lack of judgment and bizarre behavior. As in PPA, FTD usually starts at an earlier age, in the 40s and 50s.

One of Weintraub's patients with FTD was eating lunch in a restaurant with his family and excused himself to go to the bathroom. When he

hadn't returned after 10 minutes, his sons went to investigate. They found him doing pushups on the bathroom floor. Other FTD patients begin shoplifting, compulsively gambling, mispending large amounts of money or become sexually demanding.

The most common form of dementia caused by brain deterioration in individuals over age 65 is Alzheimer's disease. Weintraub did not find an increased rate of vasectomy in patients with Alzheimer's.

Many patients with FTD and PPA share a common brain disease that is completely different from Alzheimer's. Whether a patient will get the behavioral or language problems depends on where the disease causes the most destruction in the brain. In FTD, most of the damage is in the frontal lobes; in PPA, it's in the language centers of the left hemisphere of the brain.

Weintraub theorizes a vasectomy may raise the risk of PPA (and possibly FTD) because the surgery breeches the protective barrier between the blood and the testes, called the blood-testis barrier.

Certain organs – including the testes and the brain – exist in what is the equivalent of a gated community in the body. Tiny tubes within the testes (in which sperm are produced) are protected by a physical barrier of Sertoli cells. The tight connections between these cells prevent blood-borne infections and poisonous molecules from entering the semen.

After a vasectomy, however, the protective barrier is broken and semen mixes into the blood. The immune system recognizes the sperm as invading foreign agents and produces anti-sperm antibodies in 60 to 70 percent of men.

Weintraub said these antibodies might cross the blood-brain-barrier and cause damage resulting in dementia. "There are other neurological

models of disease which you can use as a parallel," Weintraub said. Certain malignant tumors produce antibodies that reach the brain and cause an illness similar to encephalitis, she noted.

The next step in Weintraub's research will be to launch a national study to see if her results will be confirmed in a larger population.

"I don't want to scare anyone away from getting a vasectomy," Weintraub stressed. "It's obviously a major birth control alternative. This is just a correlational observation," she said of the dementia connection. "We need to do more research to find out."

Source: Northwestern University

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