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Testosterone may help men with multiple sclerosis

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Close on the heels of a large-scale clinical trial just underway to confirm that the female hormone estriol combats the effects of multiple sclerosis (MS) in women, a just completed pilot study at UCLA now shows promise for the use of testosterone to combat its effects in men.

Reporting in the May issue of the journal *Archives of Neurology*, Dr. Rhonda Voskuhl, the director of UCLA's Multiple Sclerosis Program, and her colleagues have found that the application of a testosterone gel for men with MS reduced symptoms, slowed brain degeneration and increased muscle mass in men with relapsing-remitting multiple sclerosis, the most common form of the disease.

Multiple sclerosis is a progressive disease involving the immune and central nervous systems. MS and many other autoimmune diseases (in which the body attacks its own systems or tissues) are less common in men than in women, said Voskuhl, at a ratio of about three women to one man. Voskuhl has long thought that sex hormones and/or sex chromosomes may be responsible for this enhanced susceptibility. And testosterone has been shown to protect against an MS-like condition in animals.

Voskuhl and Dr. Nancy L. Sicotte, an assistant professor of neurology, conducted a study of testosterone treatment in 10 men with relapsing-remitting MS, which is characterized by periods of neurologic symptoms, such as numbness or difficulty walking, followed by periods of remission. After enrollment in the study, the men, average age 46,

entered a six-month pre-treatment phase, during which symptoms were monitored but no therapies were administered. After that, each man applied 10 grams of a gel containing 100 milligrams of testosterone to his upper arms once daily for 12 months.

"After a year we saw an improvement in cognitive performance and a slowing of brain deterioration," said Voskuhl. During the first nine months of the study, the men's symptoms were simply monitored, then followed by just three months of treatment, which still showed that the rate of brain deterioration slowed by 67 percent.

In addition, muscle mass increased an average of 1.7 kilograms, about 3.74 pounds, during the treatment phase. They were no reported adverse effects.

"The other optimistic thing about this study was that the protective effect of testosterone treatment on brain atrophy was observed in the absence of an appreciable anti-inflammatory effect," said Voskuhl, "which suggests the protection the testosterone provided may not be limited to MS, but may be applicable to other non-inflammatory neurodegenerative diseases, such as Parkinson's or Alzheimer's disease."

Four years ago Voskuhl conducted a pilot study in which 10 women with MS were given the female hormone estriol, which yielded what she described as "pretty remarkable" results — an 80 percent drop in inflammatory lesions in the brain, a hallmark of the disease. That led to a much larger trial now underway.

Her goal now is to expand this testosterone pilot study into a much larger clinical trial. "Overall, the use of the testosterone gel treatment in men with MS was shown to be safe and well tolerated," she said. "In addition, our exploratory findings suggest there's a possible neuroprotective effect of testosterone treatment in men, which we feel warrants a larger study."

Source: University of California - Los Angeles