

NIH funds Tulane scientist to study effects of estrogen on the aging female brain

December 31, 1969 6:00 AM Kathryn Hobgood Ray
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Middle-aged women who use hormone therapy are usually doing it to relieve hot flashes, night sweats, irritability and insomnia -- the unpleasant symptoms of menopause. But research conducted by Tulane University psychologist and neuroscientist Jill Daniel suggest that hormone therapy could have other effects in women: helping to stave off the cognitive decline and dementia associated with old age. She has received an award of nearly \$1.4 million dollars from the National Institutes of Health/National Institute on Aging to study how short-term estrogen use in midlife can have long-term consequences for the aging female brain and associated cognitive abilities.

"Estrogen administration begun during a critical window near menopause is hypothesized to prevent or delay age-associated cognitive decline," explains Daniel, an associate professor in the Department of Psychology and Neuroscience Program. "However, due to potential health risks, women often limit use of estrogen therapy to a few years to treat menopausal symptoms."

Daniel says that while it's thought that estrogen therapy helps delay cognitive decline in aging women, the mechanisms behind the benefits are complex and not well understood. She hopes to clarify those mechanisms, and uncover the long-term consequences for the brain in females who undergo short-term estrogen therapies.

The NIH award to Daniel and her co-investigator, neuroscientist Nandini Vasudevan of the Tulane Department of Cell and Molecular Biology, will fund a five-year study to be completed in 2017. Daniel's test cases are middle-aged rats that have had ovariectomies; some are being treated with estrogen and some are not. The results of Daniel's study could lead to groundbreaking treatments for women approaching menopause and help them maintain optimal cognitive health.

Daniel, an alumnus of Tulane who joined the faculty in 2006, has long worked to understand the impact of ovarian hormones on the brain and on memory across the lifespan.

"As the population of the United States ages, increased incidence of age-associated dementias will become a major public health issue," says Daniel. Interventions that could delay the onset of cognitive decline by even one or two years would have a major public health impact."