

Some women may be genetically predisposed to smoking-related hot flashes

May 3 2012

Women who smoke and carry specific variations in the genes that impact their metabolism are at higher risk of developing hot flashes in comparison with smokers who do not carry these gene variants, according to a recent study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology and Metabolism* (JCEM).

Previous studies have shown that smoking is associated with earlier onset of menopause, increased odds of [hot flashes](#) and risk of postmenopausal osteoporosis. The current study aimed to explore which smokers have the highest risk of hot flashes based on the presence of variants in specific genes involved in hormone metabolism as well as activation of toxins in [tobacco smoke](#).

"Our report demonstrates the impact of smoking on hot flashes as a function of variants in genes involved in sex steroid metabolism in late reproductive-age women and suggests that certain smokers have increased susceptibility to hot flashes based on their genetic background," said Samantha Butts, MD MSCE, of the Perelman School of Medicine at the University of Pennsylvania and the study's lead author. "Women who smoke and carry a particular [gene variant](#) may benefit from aggressive targeted approaches to smoking cessation, especially if they know that smoking is a significant contributor to their menopausal symptoms."

In this study, researchers examined 296 late reproductive-aged women who have been followed for the past eleven years in the Penn Ovarian

Aging Study, a population based study of reproductive aging. Butts and colleagues took blood samples from study participants and evaluated their medical and reproductive history, menopausal symptoms and behaviors such as smoking and [alcohol consumption](#). They found that women who smoked and carried single [nucleotide polymorphisms](#) (SNPs) in certain genes were at a significantly higher risk for developing hot flashes than smokers who did not carry these SNPs.

"The toxins in [cigarette smoke](#) that are believed to be associated with hot flashes are also present in many forms in the environment which means even non-smokers who have certain SNPs could be at risk for symptoms," said Butts. "Furthermore, it's possible that smoking behaviors in women carrying relevant SNPs could impact health risks well into menopause and could challenge reproductive success in young women aiming to become pregnant, making this an even broader public health consideration."

Other researchers working on the study include: Ellen W. Freeman, Mary D. Sammel, Kaila Queen, Hui Lin and Timothy Rebbeck of the University of Pennsylvania.

The article, "Joint Effects of Smoking and Gene Variants Involved in Sex Steroid Metabolism on Hot Flashes in Late Reproductive-Age Women," appears in the June 2012 issue of *JCEM*.

Provided by The Endocrine Society

Citation: Some women may be genetically predisposed to smoking-related hot flashes (2012, May 3) retrieved 25 April 2024 from <https://medicalxpress.com/news/2012-05-women-genetically-predisposed-smoking-related-hot.html>

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