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Progression and timing of menopause symptoms over the menopause transition may be related to demographic and psychosocial factors

CLEVELAND, Ohio (Wednesday, July 13, 2016)—More data analysis about hot flashes from the Study of Women’s Health Across the Nation (SWAN) has been published today in *Menopause*, the journal of The North American Menopause Society (NAMS). A study by Ping G. Tepper, PhD, and colleagues shows that the progression of vasomotor symptoms (VMS) across the menopause transition appears to be significantly and independently associated with a number of sociodemographic, reproductive hormone, and psychosocial factors.

Vasomotor symptoms (hot flashes and night sweats) are the classic menopause symptoms. Prevalence of VMS is high during and after the menopause transition, and individual women have significant variations in the timing of onset and course of VMS. Hormonal, psychosocial, lifestyle, health, and biological factors have all been previously associated with VMS.

SWAN was a multisite longitudinal community-based study of 3,302 women (aged 42-52 years at enrollment) transitioning through menopause from February 1996 through April 2013. The women belonged to one of five racial/ethnic groups: white, black, Japanese, Chinese, and Hispanic. This study sample included 1,455 women with nonsurgical menopause: almost half of the women (47.3%) were non-Hispanic white; 25.8% were black; 11.5% were Japanese; 9.8% were Chinese; and 5.6% were Hispanic. Median follow-up was 15.4 years; median age of menopause was 52.2 years.

“SWAN is one of the largest and longest racially and ethnically diverse studies of the menopause transition,” says Dr. JoAnn Pinkerton, Executive Director of The North American Menopause Society. “This study looked to characterize the trajectories of VMS occurrence in a diverse cohort and identify individual factors related to variations.”

At the baseline visit and at 13 follow-up visits, participants completed a protocol that included questionnaires, physical measures, and provision of blood samples. Women self-reported their VMS in two questions asking about the presence and frequency of hot flashes and night sweats over the prior 2 weeks. Women provided fasting blood samples to test estradiol and follicle-stimulating hormone (FSH) levels.

Time was evaluated 12 years before to 15 years after the date of the final menstrual period. Temporal patterns of VMS and associations with reproductive hormones, race/ethnicity, body mass index (BMI), and demographic and psychosocial factors were examined using group-based trajectory models. The study sample had 17,814 observations, an average 12.2 observations per woman.

The researchers identified four distinct VMS trajectory patterns: onset early (11 years before the final menstrual period), with decline after menopause (early onset group); onset near the final menstrual period with later decline (late onset group); onset early with persistently high frequency (high group), and persistently low frequency (low group).

Women with early onset VMS were more likely to have elevated baseline depressive symptoms and anxiety, poorer health, and older age at menopause. Lower BMI, black race/ethnicity, and current smoking distinguished women in the late-onset VMS group, who were also less likely to be obese.

Women in the persistently high VMS group were characterized by less education attainment, greater alcohol use, poorer health, higher depressive and anxiety symptoms, and higher symptom sensitivity and were more likely to be black, less likely to be Chinese, and show a trend toward low levels of estradiol before the final menstrual period, with a slow decline in hot flashes over the menopause transition. Black women were overrepresented in the persistently high and the late-onset VMS groups (both $P < 0.05$) relative to white women, and Chinese women in the low VMS group. Women who were obese were underrepresented in the late-onset subgroup (odds ratio, 0.56; 95% confidence interval, 0.36-0.87; $P < 0.05$). There were relatively equal proportions of women in each VMS group.

The pattern of estradiol levels over the menopause transition was significantly associated with VMS patterns. Low levels of estradiol were important for VMS occurrence, especially in the early and persistently high VMS groups. When FSH levels were substituted for estradiol levels in the analysis, similar associations between participant characteristics and VMS group were found. FSH levels did not distinguish the VMS groups, except that women in the high VMS group were more likely to have high FSH levels relative to the low group.

These results seem to show that hormones, race/ethnicity, BMI, education, smoking, drinking alcohol, general health status, anxiety, and depression have a strong relation to the timing and persistence of VMS in a diverse population of midlife women.

“This information provides insight into the different patterns of highly prevalent and often bothersome menopause symptoms,” says Dr. Pinkerton. “Interventions to treat VMS may be tailored to address specific factors, including ethnicity and patterns of hot flashes that contribute to VMS, allowing us to target women who are most affected and helping clinicians to counsel women and women’s ability to make informed decisions about treatment options.”

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Founded in 1989, The North American Menopause Society (NAMS) is North America's leading nonprofit organization dedicated to promoting the health and quality of life of all women during midlife and beyond through an understanding of menopause and healthy aging. Its multidisciplinary membership of 2,000 leaders in the field—including clinical and basic science experts from medicine, nursing, sociology, psychology, nutrition, anthropology, epidemiology, pharmacy, and education—makes NAMS uniquely qualified to serve as the definitive resource for health professionals and the public for accurate, unbiased information about menopause and healthy aging. To learn more about NAMS, visit www.menopause.org.