

PMS as an early marker for future high blood pressure risk

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Credit: George Hodan/public domain

In the first prospective study to consider premenstrual syndrome (PMS) as a possible sentinel for future risk of hypertension, epidemiologist Elizabeth Bertone-Johnson and colleagues in the School of Public Health and Health Sciences at the University of Massachusetts Amherst and the Harvard School of Public Health report that women with moderate-to-severe PMS had a 40 percent higher risk of developing high blood pressure over the following 20 years compared to women experiencing few menstrual symptoms.

Bertone-Johnson says, "To my knowledge, this is the first large long-term study to suggest that PMS may be related to risk of chronic health conditions in later life." Details appear in the current issue of the *American Journal of Epidemiology*.

The higher risk persisted after adjusting for known risk factors including body mass index, pack-years of cigarette smoking, physical activity, alcohol use, postmenopausal hormone use, oral contraceptive use and family history of [hypertension](#), the authors state. Results were strongest for hypertension

occurring before age 40. In this age group, [women](#) with PMS had a three-fold higher risk of developing hypertension compared to women without PMS.

Clinically significant PMS affects as many as 8 to 15 percent of women, Bertone-Johnson says. Her findings suggest that PMS may be associated with future development of hypertension and that this may be modifiable. The authors recommend that "women with PMS should be screened for adverse changes in blood pressure and future risk of hypertension."

Bertone-Johnson and colleagues evaluated the PMS-blood pressure relationship in 1,257 women who developed clinically significant PMS between 1991 and 2005 and in 2,463 age-matched control participants with few menstrual symptoms, all of whom were participants in the Nurses' Health Study II. The authors assessed PMS with a modified Calendar of Premenstrual Experiences, which includes such symptoms as palpitations, nausea, forgetfulness, dizziness, hot flashes, insomnia, depression, acne and cramping.

In their sub-study, researchers followed participants for new diagnoses of hypertension until 2011. They found women with PMS had a hazard ratio for hypertension of 1.4 compared to women without PMS, a statistically significant increased risk of 40 percent. The risk associated with PMS was not modified by oral contraceptive or antidepressant use. However, the higher risk was not present in women with high intakes of the B vitamins thiamine and riboflavin.

Bertone-Johnson and colleagues recently found that women with high dietary intake of the B vitamins thiamine and riboflavin had 25 to 35 percent lower risks of developing PMS. Results from the present study are "consistent with these findings, and suggest that improving B vitamin status in women with PMS may both reduce menstrual symptom severity and lower

hypertension risk," they write.

Few studies have directly evaluated the association of PMS with [blood pressure](#) or risk of hypertension, but a handful provide some support for the existence of underlying differences in vascular physiology in women with PMS compared to symptom-free women, which could plausibly predispose PMS cases to hypertension and cardiovascular disease later in life, the authors state.

Provided by University of Massachusetts Amherst

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