Changes in carotid artery during menopausal transition may predispose women to higher risk of cardiovascular disease

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Substantial changes in the diameter and thickness of a section of carotid artery in perimenopausal women may indicate a higher risk of developing cardiovascular disease, the leading cause of death in women, according to a new study by researchers at the University of Pittsburgh Graduate School of Public Health.

Epidemiologists studied 249 women aged 42 to 52 from the Pittsburgh site of the Study of Women's Health Across the Nation (SWAN) observational study. Each participant was given up to five ultrasound scans during transitional phases of menopause to measure the thickness and diameter of a section of the carotid artery. Researchers noted significant increases in the average thickness (0.017 mm per year) and diameter (0.024 mm per year) of the carotid artery during the late perimenopausal stage, the period of time when menstruation ceases for more than three consecutive months. These increases were significantly higher than those found in the premenopausal stage.

"These data highlight late perimenopause as a stage of vascular remodeling during which arteries become more vulnerable, regardless of a woman's age and ethnicity," says Samar R. El Khoudary, Ph.D., M.P.H., lead author of the study, which is now available online and in the January 2013 print issue of Menopause: The Journal of the North American Menopause Society.
The findings also suggest that the changes in the diameter of the arterial wall may occur first in response to lower levels of estrogen during perimenopause. The thickening of the arterial wall likely follows as the body adjusts to the increased stress from the dilated artery, says Dr. El Khoudary. Late perimenopause also is the time during which women gain weight and face changes in lipid profiles and body fat distribution. Those risk factors in combination with the vascular changes may place older women at risk for developing atherosclerosis, says Dr. El Khoudary.

"Our current study highlights late perimenopause as a time when early intervention strategies targeting cardiovascular disease might yield the greatest benefit," she adds.

Provided by University of Pittsburgh Medical Center

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