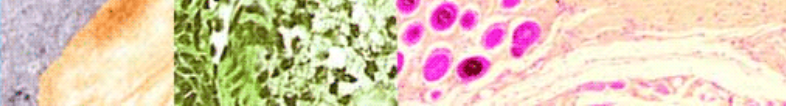


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Lipoprotein subclasses and endogenous sex hormones in women at midlife

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ABSTRACT

The objective of this work was to evaluate the associations between levels of endogenous sex hormones in women at midlife and lipoprotein subclasses. One hundred and twenty women (68 late peri-/postmenopausal and 52 pre-/early perimenopausal) from the Study of Women's Health Across the Nation (Pittsburgh site) were included. Lipoprotein subclasses were quantified using NMR spectroscopy. Participants (57.5% White and 42.5% Black) were 50.4 ± 1.9 years old. Adjusting for age, race, cycle day of blood draw, BMI, physical activity, and alcohol consumption, a negative correlation was found between estradiol (E2) and medium-small LDL particle (LDL-P) concentration ($p = -0.19$, $P = 0.04$). Further, E2 was positively correlated with HDL particle (HDL-P) size ($\rho = 0.22$, $P = 0.02$). For sex hormone binding globulin (SHBG), independent negative correlation was found with total small LDL-P concentration. SHBG was also positively correlated with LDL-P and HDL-P sizes ($P < 0.05$ for all). For free androgen index (FAI), positive correlations were found with concentrations of total VLDL particles, total LDL-Ps, and total small LDL-Ps. Additionally, FAI was negatively correlated with large HDL-P concentration, and HDL-P and LDL-P sizes ($P < 0.05$ for all). Lower levels of E2 and SHBG, and higher levels of FAI were associated with a more atherogenic profile of lipoprotein subclasses. Sex hormone levels at midlife may increase women's risk of coronary heart disease.

menopause

estradiol

free androgen index

sex hormone binding globulin

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CV coefficient of variation
E2 estradiol
FAI free androgen index
HDL-C HDL cholesterol
HDL-P HDL particle
HT hormone therapy
LDL-C LDL cholesterol
LDL-P LDL particle
LLD lower limit of detection
SHBG sex hormone binding globulin
SWAN Study of Women's Health Across the Nation
VLDL-P VLDL particle

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