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Effect of Dehydroepiandrosterone (DHEA) Replacement on Lipoprotein Profile in Hypoadrenal Women

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Background: Levels of DHEA and its sulfate form (DHEAS) are inversely associated with cardiovascular mortality in men but not in women. Very little evidence is available on the impact of DHEA administration on lipoprotein profile in women. LDL particle size has been accepted as an important predictor of cardiovascular events. Since DHEAS levels are very low/ undetectable in hypoadrenal women we determined the effect of DHEA replacement on Lipoprotein profile in hypoadrenal women.

Methods: In this double-blind, randomized, placebo controlled, crossover design study, 33 hypoadrenal women (mean± SD: Age: 50.3+15.2 yrs., BMI: 26.6+4.4 kg/m2) were assigned to receive either a placebo or 50 mg/day of DHEA for three months each. DHEA period had higher plasma DHEAS levels than during placebo (< 0.3 ±0.0 vs. 3.5 ±1.3 nmol/L, p< 0.001). Lipid levels and Lipoprotein profile was analyzed using the Lipo Science Lipoprotein NMR system .

Results: DHEA replacement significantly reduced total cholesterol and HDL levels, and tends to reduce triglyceride, and total LDL levels (Table). Although, DHEA replacement had no effect on LDL particle size, it significantly reduced large HDL particles size.

Conclusion: Our study findings suggest that exogenous DHEA administration resulted in unfavorable lipoprotein profile by reducing both HDL levels and large HDL particle size and warrants long-term outcome measures to determine the impact of DHEA replacement on cardio vascular risk.

	Placebo Median Change (Interquartile Range)	**DHEA Median Change (Interquartile Range)**	**p value**
Total Cholesterol (mg/dL)	20.0 (-3, 36)	-22.0 (-34, 6)	0.021
Triglycerides (mg/dL)	2.0 (-4, 35)	-5.0 (-26, 06)	0.076
LDL Cholesterol (mg/dL)	6.0(-2, 22)	-4.0 (-25.5, 7)	0.084
LDL mean particle size(nm)	-0.1 (-0.2, 0.0)	-0.1 (-0.2, 0.0)	0.888
Small LDL particles (µmol/L)	73.0 (-24, 179)	-14.0 (-208, 121)	0.1467
HDL Cholesterol (mg/dL)	2.0(-1, 16)	-6.0(-10, -2)	0.0061
HDL mean particle size (nm)	0.0(-0.1, 0.1)	-0.1 (-0.2, -0.1)	0.128
Large HDL particles (µmol/L)	0.5 (0.2, 2.6)	-1.0 (-2.7, -0.4)	0.0057