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Title

Preliminary Evidence that Combination Oral Contraceptive Use in Young Adult Women Is Associated with the Endocrine Stress Response to High-Dose Alcohol

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Abstract Application

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What Kind of Abstract? ☐ Symposium ☒ X Poster

If Symposium, which one? If someone is planning a symposium on sex differences in alcohol's effects on the stress system and they are looking for a contributor who fits their theme, then we would be happy to convert this Poster Abstract into a Symposium Abstract as part of their proposal.

Title of your Abstract:

Comments:

Abstract (limit 250 words):

Introduction: We recently reported that young women's endocrine stress system is less reactive to high-dose alcohol than men's. Since the stress axis is sensitive to gonadal and exogenous steroids, we measured 17- β estradiol (E2) and progesterone (P4) levels in the women prior to ingesting alcohol. We explored whether plasma P4-to-E2 ratios were associated with stress hormone responses.

Methods: 27 women (age = 22.1 years) rapidly consumed alcohol (1.0 ml / kg) in a 20% by volume solution. Women were either naturally cycling (NC, N=11), or using combination oral contraceptives (COC, N=7), or long-acting reversible contraceptives (LARCs, N=9). P4 and E2 plasma concentrations were measured at baseline; ACTH/cortisol levels were measured over 4h. After controlling for baseline ACTH/cortisol differences, regression analyses evaluated 1) potential interactions among hormonal contraceptive (HC) groups and P4-to-E2 ratios; and 2) whether those ratios predicted the ACTH/cortisol response to alcohol.

Results: The P4-to-E2 ratio was higher in NC women than women taking HCs ($p=0.034$). Regression results revealed significant interaction effects; P4-to-E2 ratios predicted ACTH ($p=0.009$) and cortisol ($p=0.007$) area-under-curve (AUC) values differently for COC vs. other HC groups. Follow-up regressions demonstrated a similar pattern of results: among the COC group only, higher P4-to-E2 ratios predicted both higher ACTH AUC values ($p<0.001$) and higher cortisol AUC values ($p=0.031$) with no significant effects for NC and LARC groups.

Conclusions: Although limited by modest sample sizes, these preliminary findings suggest that among women using COCs, the P4-to-E2 ratio might influence the stress hormone response to a binge-like dose of alcohol.
