

Polycystic Ovarian Syndrome Conference

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Chronic hyper androgenemia and western-style diet in adolescent female monkeys: A model for onset of PCOS in young women

Since clinical symptoms of PCOS first occur after puberty, experiments tested the hypothesis that chronic exposure to elevated androgen (testosterone, T) levels, comparable to those in adolescent girls predisposed to PCOS, alone or with administration of a western-style diet, causes reproductive and metabolic features associated with PCOS. At one year of age, female rhesus monkeys received control (cholesterol) or T implants sc. Treatment increased ($p < 0.01$) levels 3.7 fold compared to controls. Menarche occurred at a comparable age (32 months) in both groups. However, T-treated monkeys exhibited a greater number of LH pulses compared to controls ($p < 0.05$) by 5 years of age. There were no remarkable differences in ovarian or metabolic parameters prior to changing diets. At 5.5 years of age, monkeys received a high-fat diet (WSD) for 18 months. After WSD, LH pulse amplitude declined and % body fat increased ($p < 0.05$) in both WSD and WSD+T animals but insulin sensitivity only declined ($p < 0.05$) in the WSD+T group. The numbers of antral follicles increased in the ovaries of both groups, and took on the clinical "string of pearls" feature. Estradiol and progesterone levels circulating during the menstrual cycle were suppressed ($p > 0.05$) in the T+WSD group. Thus the WSD caused some features characteristic of PCOS, but T+WSD caused a more severe ovarian and metabolic phenotype. This model should help discern the peri-pubertal effects of hyper-androgenemia and diet and their possible treatment; P50HD071836 and P51OD011092.

Biography

Richard L Stouffer has received his PhD from Duke University and Postdoctoral Training at NICHD, National Institutes of Health. He is currently a Senior Scientist in the Division of Reproductive & Developmental Sciences, ONPRC and Professor in Obstetrics & Gynecology, OHSU. He also serves as Director/Co-Director of NIH-supported centers studying infertility and contraception. He has published over 200 papers in peer-reviewed journals and received distinguished research awards from the Society for the Study of Reproduction (2007) and the American Society for Reproductive Medicine (2010).

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