

crisprd 1.0



Abstract

Grant Number: 1R01NR005002-01A2

PI Name: YEO, SEONAE

PI Title:

Project Title: Regular Exercise Among Women at Risk for Preeclampsia

Abstract: *DESCRIPTION (Applicant's abstract): Preeclampsia, the sudden onset of high blood pressure along with proteinuria during pregnancy, is a serious complication affecting nearly one in every 20 pregnancies. It is the main cause of maternal death worldwide, and affects women of all races and socioeconomic groups. Unfortunately, no definitive preventive treatment is currently available for this ominous disease. Scientists now believe that preeclampsia is a disease of the endothelium, due in part to oxidative stress. As such, regular exercise has emerged as a potential preventive measure. This contrasts to daily low dose aspirin or calcium supplement which have failed to demonstrate a significant effect and may have adverse effects. The purpose of this study is to determine if moderate intensity exercise during pregnancy will reduce the incidence of preeclampsia and to assess the process (involving oxidative stress and antioxidant process) hypothesized to explain the effect of exercise on preeclampsia. This is a randomized clinical trial with a total of 250 pregnant subjects at risk for preeclampsia. Eligible subjects will enter a run-in period (i.e., qualifying period) at 14 to 18 weeks gestation. Baseline data to be obtained include demographic information, health history, daily physical activities, cardiovascular fitness level, blood pressure, blood sample for serum iron, transferrin, low density lipoprotein, malondialdehyde, superoxide dismutase. At 18 weeks, compliant subjects will be randomly assigned to either the exercise (40 min., 70 percent VO₂max, 5x/week) or sham exercise (control group; 10 min. stretch exercise, 5x/week) condition. For both groups, all baseline measurements will be repeated at 28 weeks (Outcome I). Subjects will continue the exercise regimen after 28 weeks up to her term and as long as it is safe and comfortable. A blood sample will be collected again during labor (Outcome II). Subjects who undergo cesarean section for obstetrical reasons*

will provide a small amount of subcutaneous tissue at the time of incision to measure endothelial superoxide dismutase. Medical records will be reviewed for additional outcome data (pregnancy/birth outcomes and diagnosis of preeclampsia). Chi-square tests of association and logistic regression analysis will be applied to address the effect of exercise, prediction of preeclampsia, and other pregnancy outcomes. Repeated Measures ANOVA will be applied to assess the effect of exercise on various biological markers. ANCOVA will be applied to control confounding factors.

Thesaurus Terms:

cardiovascular disorder therapy, exercise, human therapy evaluation, preeclampsia antioxidant, clinical trial, disease /disorder proneness /risk, erythrocyte, lipid peroxide, low density lipoprotein, oxidative stress, superoxide dismutase, vascular endothelium female, human subject, patient oriented research, women's health

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