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Myo-inositol Supplementation for Prevention of Gestational Diabetes in Obese Pregnant Women: A Randomized Controlled Trial.

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Abstract

OBJECTIVE: To evaluate whether myo-inositol supplementation, an insulin sensitizer, reduces the rate of gestational diabetes mellitus (GDM) and lowers insulin resistance in obese pregnant women.

METHODS: In an open-label, randomized trial, myo-inositol (2 g plus 200 micrograms folic acid twice a day) or placebo (200 micrograms folic acid twice a day) was administered from the first trimester to delivery in pregnant obese women (prepregnancy body mass index 30 or greater). We calculated that 101 women in each arm would be required to demonstrate a 65% GDM reduction in the myo-inositol group with a statistical power of 80% ($\alpha=0.05$). The primary outcomes were the incidence of GDM and the change in insulin resistance from enrollment until the diagnostic oral glucose tolerance test.

RESULTS: From January 2011 to April 2014, 220 pregnant women at 12-13 weeks of gestation were randomized at two Italian university hospitals, 110 to myo-inositol and 110 to placebo. Most characteristics were similar between groups. The GDM rate was significantly reduced in the myo-inositol group compared with the control group, 14.0% compared with 33.6%, respectively ($P=.001$; odds ratio 0.34, 95% confidence interval 0.17-0.68). Furthermore, women treated with myo-inositol showed a significantly greater reduction in the homeostasis model assessment of insulin resistance compared with the control group, -1.0 ± 3.1 compared with 0.1 ± 1.8 ($P=.048$).

CONCLUSION: Myo-inositol supplementation, started in the first trimester, in obese pregnant women seems to reduce the incidence in GDM through a reduction of insulin resistance.