

Myo-inositol supplementation to prevent gestational diabetes and effects on body composition in overweight non-obese women: a randomized placebo-controlled trial

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Context. Maternal body composition undergoes deep adaptative changes during pregnancy, especially in many pathological conditions such as gestational diabetes mellitus (GDM).

Objective. To evaluate whether myo-inositol supplementation may change body composition and may reduce incidence of GDM in overweight non-obese women.

Methods. This is an interim analysis of randomized placebo-controlled trial. Women were randomly assigned into 1:1 ratio in either myo-inositol group (myo-inositol 2g plus 200µg folic acid twice a day) or placebo group (200µg folic acid twice a day).

Patients. Single pregnancy with pre-pregnancy BMI >25 and < 30 kg/m², first trimester fasting plasma glucose ?126 mg/dl and/or random glycemia <200 mg/dl, without previous GDM and pre-gestational diabetes.

Interventions. Body composition (evaluated by Bioelectrical Impedance Analysis) and incidence of GDM were assessed at different gestational age cut-offs (T0: 12°-13° w, T1: 26°-27° w, T2: 31°-32° w, T3: 3 w after delivery).

Main Outcome Measures. The main outcome measure was the occurrence of GDM.

Results. 140 women, equally divided into the two groups, were enrolled and analysed. At T2 women who received placebo had a significant reduction in the fat free mass - fat mass ratio (1.84 ± 0.51 vs 2.16 ± 0.45) ($p=0.00006$), and an increase ($p=1.7 \times 10^{-13}$) of extracellular water (19.02 ± 2.20 vs 16.08 ± 2.09) compared to those who received myo-inositol. The incidence of GDM was reduced in the myo-inositol group ($n= 6$, 9%) compared with the placebo group ($n= 16$, 23%) ($p=0.2$). Myo-inositol treatment was associated with a reduction in the risk of GDM development (OR 4.6, 95% CI 0.02 to 90.8).

Conclusions. Myo-inositol supplementation may reduce the incidence of GDM in overweight non-obese women. It could also contribute to a greater increase of fat free mass than fat mass and to a lower increase of extracellular water.

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