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Serum zinc levels in gestational diabetes

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Abstract:

Background: Maternal zinc deficiency during pregnancy has been related to adverse pregnancy outcomes. Most studies in which pregnant women have been supplemented with zinc to examine its effects on the outcome of the pregnancy have been carried out in industrialized countries and the results have been inconclusive. It has been shown that women with gestational diabetes (GDM) have lower serum zinc levels than healthy pregnant women, and higher rates of macrosomia. Zinc is required for normal glucose metabolism, and strengthens the insulin-induced transportation of glucose into cells by its effect on the insulin signaling pathway. The purpose of this study was to assess the serum zinc levels of GDM patients and evaluate the effect of zinc supplementation.

Methods: In the first stage of this prospective controlled study, we enrolled 70 women who were 24-28 weeks pregnant at the Prenatal Care Center of Mirza Kochak Khan Hospital, Tehran, Iran. The serum zinc level of each subject was determined. In the second stage, among these 70 subjects, the diabetics receiving insulin were divided into two groups, only one of which received a zinc supplement and the other group was the control group. Birth weight of neonates and insulin dosages were recorded.

Results: The mean serum zinc level in the GDM group was lower than that of the control group (94.83 vs. 103.49mg/dl, respectively) and the mean birth weight of neonates from the GDM women who received the zinc supplement was lower than that of the control group (3849g vs. 4136g). The rate of macrosomia was lower in the zinc supplemented group (20% vs. 53%). The mean of increase of insulin after receiving the zinc supplement was lower (8.4u vs. 13.53).

Conclusion: Maternal insulin resistance is associated with the accumulation of maternal fat tissue during early stages of pregnancy and greater fetoplacental nutrient availability in later stages, when 70% of fetal growth occurs, resulting in macrosomia. In our study, zinc supplementation is associated with a reduction in the rate of fetal macrosomia among pregnant women with GDM.

Keywords:

[Gestational diabetes](#) , [serum zinc](#) , [macrosomia](#) , [zinc supplement](#)

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