British Journal of Obstetrics and Gynaecology
February 1988, Vol. 95, pp. 120–125

Magnesium supplementation in pregnancy. A double-blind study

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Summary. The effect of magnesium supplementation in pregnancy was studied in 568 women who were treated with 15 mmol magnesium-aspartate-hydrochloride per day or aspartic acid as placebo given orally during pregnancy from ≤16 weeks. Allocation to the two groups was performed according to the women's birthdates. Magnesium supplementation during pregnancy was associated with significantly fewer maternal hospitalizations, a reduction in preterm delivery, and less frequent referral of the newborn to the neonatal intensive care unit. The results suggest that magnesium supplementation during pregnancy has a significant influence on fetal and maternal morbidity both before and after delivery.

In recent years, although intensive care has resulted in an important increase in neonatal survival rates, preterm delivery remains responsible for most neonatal morbidity. Even though magnesium has had its place in obstetrics for the management of eclampsia since the beginning of the century, a connection with preterm labour was only recognized in the 1960s (Dumont 1965). Wider interest in the role of magnesium in obstetrics was reactivated by our observations that supplemental magnesium medication allowed a considerable reduction in the dose of beta adrenergic agents used for tocolysis of preterm labour (Spätling 1981). Based on these findings, Conradt *et al.* (1984) showed in a retrospective study that the frequency of fetal growth retardation and pre-eclampsia was reduced in association with magnesium supplementation. In the light of these findings, we conducted a double-blind study to clarify whether magnesium supplementation has an influence on these variables. The following null hypotheses were stated: magnesium supplementation has no effect on: (i) pre-eclampsia; (ii) preterm labour (and consequently gestational age at delivery) and (iii) fetal growth.

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Subjects and methods

Between March 1983 and March 1985 all patients who attended the outpatient clinic at the department of obstetrics, University of Zürich, were asked to participate in the study. All normal- and high-risk patients were included. A total of 568 women gave their general agreement and they were included in the trial as early as possible in pregnancy, but not later than 16 weeks gestation which was estimated from the first day of the last menstrual period. This sample size was determined by the limitation of the recruitment period which, for practical reasons, could not exceed 2 years.

The method of allocation was based on the subjects' date of birth. Women with an even birthdate were given 15 mmol of magnesium-aspartate-hydrochloride; women with an odd birthdate were given a placebo containing 13·5 mmol of aspartic acid per day. These doses were divided into six tablets to be taken daily. At