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Magnesium Sulfate Maintenance Infusion in Women with Preeclampsia: A Randomized Comparison between 2 Gram per Hour and 1 Gram per Hour

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Abstract

Objective: To compare the percentages of pregnant women with preeclampsia who reached the therapeutic serum magnesium levels between those who received maintenance magnesium sulfate infusion of 2 g/hour versus 1 g/hour.

Material and Method: Sixty women diagnosed of preeclampsia and magnesium sulfate that were considered for seizure prophylaxis were randomized into two groups. A loading dose of 5 g magnesium sulfate was given intravenously over 20 minutes to both groups. Maintenance doses of magnesium sulfate of 2 g/hour and 1 g/hour were given to the study and control groups, respectively. The maintenance dose was continued until 24 hours postpartum. Blood samples for serum magnesium were collected at 0, 1/2, 2, and 4 hours after the loading dose and at 2 and 12 hours after delivery. Clinical signs of magnesium toxicity were carefully monitored. Maternal and neonatal outcome were evaluated.

Results: Significantly more women in the present study group reached the therapeutic level of serum magnesium at 2 hours (70% vs. 23%, $p = 0.001$) and at 4 hours (80% vs. 17%, $p = 0.00$) after the loading dose and at 2 hours (60% vs. 20%, $p = 0.003$) and at 12 hours (80% vs. 37%, $p = 0.001$) after delivery. No clinical magnesium toxicity was observed. There were no significant differences in maternal and neonatal outcomes between the two groups.

Conclusion: The maintenance dose of magnesium sulfate at 2 g/hour was more likely to attain the therapeutic level of serum magnesium when compared to 1 g/hour with no detectable difference in maternal and neonatal outcomes.

Keywords: Serum magnesium level, Preeclampsia, Randomized controlled trial

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