

Postoperative Pain Assessment after Cesarean Section following Magnesium Sulfate Use in Patients with Preeclampsia

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Background: Preeclampsia is a major cause of maternal morbidity and mortality worldwide, and magnesium sulfate remains the standard therapy for seizure prophylaxis. Beyond its obstetric benefits, magnesium has been proposed as an adjuvant analgesic due to its N-methyl-D-aspartate (NMDA) receptor antagonism; however, evidence regarding its impact on postoperative pain after cesarean delivery in preeclamptic patients remains limited and inconsistent.

Objective: To compare the prevalence and intensity of postoperative pain in women with preeclampsia undergoing cesarean section who received magnesium sulfate with those who did not.

Methods

A retrospective cohort study was conducted including women with antenatal diagnosis of preeclampsia who underwent cesarean delivery between 1/1/2022, and 1/31/2023, at two private tertiary maternity hospitals in São Paulo, Brazil.

Patients were divided into two groups according to perinatal magnesium sulfate administration: magnesium group (MG) and non-magnesium group (NG).

Magnesium sulfate was administered following a standardized institutional protocol (4 g intravenous loading dose followed by 1 g/h for 24 hours).

Postoperative pain was assessed using the Numeric Rating Scale (NRS, 0–10) at the first postoperative evaluation. Demographic, obstetric, and clinical variables were compared between groups.

Nonparametric tests were used, and statistical significance was set at $p < 0.05$.

Among 2,151 women with preeclampsia, 868 met inclusion criteria, with 380 in the magnesium group and 488 in the non-magnesium group.

Median postoperative pain scores were 4.0 (IQR 0–6) in the magnesium group and 5.0 (IQR 2–8) in the non-magnesium group. This difference was not statistically significant (Mann–Whitney $U = 90,475$; $p = 0.54$), with a very small effect size ($r = 0.02$).

The distribution of pain intensity categories (absent, mild, moderate, and severe) was similar between groups.

No significant correlations were found between pain scores and maternal age, body mass index, parity, or gestational age.

Conclusions

In this cohort of women with preeclampsia undergoing cesarean delivery under standardized multimodal analgesia, perinatal magnesium sulfate administration was not associated with a significant reduction in immediate postoperative pain intensity.

While magnesium sulfate remains essential for seizure prophylaxis in preeclampsia, its role as an adjuvant analgesic in this population remains uncertain.

Prospective randomized studies with longitudinal pain assessment and analgesic consumption analysis are warranted to clarify its potential analgesic benefits.