

Antenatal Magnesium Sulphate Infusion for Neuroprotection of Preterm Babies.

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ABSTRACT

The incidence of cerebral palsy (CP) before the age of 2 years is highest among the preterm babies. Neuroprotection in preterm babies is challenging. There are various proposed mechanisms but antenatal magnesium sulphate ($MgSO_4$) infusion for 4 to 24 hours predelivery has shown to reduce the incidence of CP at the cost of bearable minor maternal and fetal side-effects. The practice of antepartum infusion of $MgSO_4$ is adopted by various guidelines and societies, including World Health Organization (WHO).

LETTER TO THE EDITOR

Incidence of cerebral palsy (CP) increases with the preterm delivery. Before 30 weeks of gestation, the incidence of CP is 10 times higher compared with term delivery.¹ World Health Organization (WHO) has recommended preterm steroid injection, preterm antibiotic use after the water break and preterm magnesium sulphate ($MgSO_4$) for improving the overall survival rate and neurological status.² $MgSO_4$ is very cost-effective medication with multiple advantage in anaesthesiology. Currently there are many supportive literatures in the favour of neuroprotection of antenatal $MgSO_4$ infusion in the preterm babies.

In women at risk of early preterm delivery less than 30 weeks, $MgSO_4$ infusion is recommended for the reduction of CP. (1,2,3,4) Even for women at risk of delivery between 32-34 weeks, there is advantage of $MgSO_4$ infusion for neuroprotection.^{3,4} Usually, $MgSO_4$ 4 gm is loaded over 20-30 minutes followed by the infusion of 1-2 gm/hour. $MgSO_4$ should be administered when early preterm delivery is planned or expected delivery within 24 hours. Even when the delivery is expected to be sooner than 4 hours, administration of $MgSO_4$ infusion has likely advantage.^{3,4} The maternal side effects related to $MgSO_4$ infusion are minor and manageable. Usually, the side effects reported are nausea, vomiting, flushing, sweating and a sensation of warmth. These side effects can be lowered by reducing the rate of loading/maintenance dose or increasing the duration

of infusion of the loading. These side effects are reversible and are completely free when the infusion is stopped. Monitoring of heart rate, blood pressure, respiratory rate, urine output and deep tendon reflex is advisable during the infusion of $MgSO_4$.^{3,4} Antenatal $MgSO_4$ has no influence on the neonatal vital parameter such as heart and respiratory rate, temperature, oxygen saturation and glycemia. Antenatal $MgSO_4$ exposure hasn't shown to improve 5-minute Apgar score but the rate of intubation, chest compression, hypotension or mechanical ventilation is similar compared with the placebo groups.⁵ Both

fetal hypomagnesemia and hypermagnesemia are not beneficial to the fetus, instead they may lead to more side effects.⁴ Thus, the burden of CP is much worse compared to the advantage of the $MgSO_4$ infusion in such population.

Despite of advantages in reduction of CP by the antenatal $MgSO_4$ infusion particularly in less than 32 weeks gestational age, the routine use is found to be negligible. The cause of underuse of magnesium sulphate can be due to lack of awareness, limitation of the resources available

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for its use and possibly other unexplored reasons.

Regards

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