

Neonatal magnesemia in preterm neonates unexposed to maternal MgSO₄ administration and in neonates exposed for fetal neuroprotection or maternal eclampsia prevention: a retrospective cohort study, 2012-2015.

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Abstract

Objective - To compare neonatal magnesemia in the first fifteen days of neonatal life between three groups: a control group not exposed to MgSO₄, a neuroprotection group, and an eclampsia prevention group, and to explore its' associations with child outcomes. **Design** - Retrospective single-centre cohort study. **Setting** - Tertiary care setting. **Population** - Infants admitted at the neonatal intensive care unit born between 24 and 32 weeks' gestation, regardless of etiology of preterm birth. **Methods** - Linear mixed regression of neonatal magnesemia on exposure group and day of life. Generalised estimating equations models of child outcomes on neonatal magnesemia according to exposure group and day of life. **Main outcome measures** - Neonatal magnesemia (mmol/l). **Results** - Neonatal magnesemia is significantly higher in the preeclampsia group compared to the control and neuroprotection group. On the day of birth, this is irrespective of maternal magnesemia (preeclampsia vs control group), and the maternal total dose or duration of MgSO₄ administration (preeclampsia vs neuroprotection group). No differences were found in short-term composite outcome between the three groups. **Conclusions** - We found mean differences in neonatal magnesemia between children not exposed to MgSO₄ antenatally, children exposed for fetal neuroprotection, and children exposed for maternal eclampsia prevention. A 4g loading and 1g/h maintenance dose, for fetal neuroprotection and eclampsia prevention, appears to be safe on the short term for the neonate. **Funding** - Isabelle Dehaene is funded by a scholarship of FWO (1700520N) **Keywords** - neonatal magnesemia, neuroprotection, preeclampsia, preterm birth

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