

Prevention of Cerebral Palsy in PreTerm Labour



SARS CoV-2 Pandemic: Magnesium Sulphate for Fetal Neuroprotection

Background:

We find ourselves in the grip of a global pandemic. COVID-19, a disease that didn't exist four months ago. There are many uncertainties. The evidence base is still developing and mostly based on case series from China

There are some reports suggesting that mothers with severe COVID-19 are more likely to need preterm delivery. 15% of these severe cases had pre-eclampsia and 90% of these deliveries were by caesarean sectionⁱ From anecdotal reports from Italy and Spain we have heard that the majority of pregnant mothers with COVID-19 have mild disease, and in these cases babies fortunately seem to be relatively well.

There is no information on longer term outcomes in babies. We don't know if preterm babies will be at higher risk of preterm brain injury (white matter injury). Mothers with severe COVID-19 are likely to have a severe inflammatory response (cytokine storm), which raises concern that babies in this environment might be at higher risk of preterm brain injury. Therefore, it makes sense to use the evidence-based interventions that help with neuroprotection.

Consensus View:

1. MgSO₄ for preterm brain protection has a strong evidence base. We should continue to use it in the < 30 week gestation as specified in the NICE guidanceⁱⁱ.
NG25: *"Give a 4 g intravenous bolus of magnesium sulfate over 15 minutes, followed by an intravenous infusion of 1 g per hour until the birth or for 24 hours (whichever is sooner)"*
2. Monitoring of the mother in preterm labour should be followed as specified in the NICE guidance.
NG25: *"For women on magnesium sulfate, monitor for clinical signs of magnesium toxicity at least every 4 hours by recording pulse, blood pressure, respiratory rate and deep tendon (for example, patellar) reflexes."*

3. Mothers with COVID-19 receiving MgSO₄ need to be closely monitored for renal impairment.

NG25: *“If a woman has or develops oliguria or other signs of renal failure:*

- *monitor more frequently for magnesium toxicity*
- *think about reducing the dose of magnesium sulfate.”*

4. When giving the loading dose of MgSO₄, women often feel uncomfortable flushing and anxiety. Women need to be informed that this is likely to happen. In the increased state of anxiety around COVID-19 this deserves close attention and the maintenance infusion may need to be given more slowly.

5. In the scenario where maternity units might be stretched for capacity and staff numbers, it could help if prediluted Magnesium Sulphate preparations are ordered and in stock. This will save time and mitigate against dosage errors.

Author: Dr Karen Luyt MBChB PhD FRCPCH, Reader in Neonatal Medicine
PReCePT Programme Clinical Lead
PReCePT Study Chief Investigator

Date: 27 March 2020

ⁱ Outcome of Coronavirus spectrum infections (SARS, MERS, COVID-19) during pregnancy: a systematic review and meta-analysis. American Journal of Obstetrics and Gynecology. Pre-press. 2020

Daniele DiMascio, Asma Khalil, Gabriele Saccone, Giuseppe Rizzo, Danilo Buca, Marco Liberati, Jacopo Vecchiet, Luigi Nappi, Giovanni Scambia, Vincenzo Berghella, Francesco D’Antonio

<https://doi.org/10.1016/j.ajogmf.2020.100107>

<https://www.sciencedirect.com/science/article/pii/S2589933320300379>

ⁱⁱ <https://www.nice.org.uk/guidance/ng25>