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The effect of magnesium sulphate on clinical outcomes of low-birth-weight babies at the Chris Hani Baragwanath Academic Hospital

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Abstract

Introduction

Magnesium sulphate ($MgSO_4$) has been used for neuroprotection in the management of pre-eclamptic toxaemia (PET) and eclampsia in mothers of neonates at a lower gestational age and its' use is recommended in preterm deliveries less than 30-32 weeks of gestation. There may be greater effects at an earlier gestational age, with no associated long term adverse foetal or maternal effects; resulting in increased survival of preterm babies. The aim of the study was to assess if the administration of $MgSO_4$ improved the neonatal outcomes in low birth weight (LBW) infants whose mothers received magnesium sulphate.

Methods

This was a retrospective descriptive study of neonates, whose mothers' received

$MgSO_4$ (as indicated by $MgSO_4$+ group) admitted to the neonatal unit within a two-year period (January 2016 – December 2017). The demographics and outcome at hospital discharge were collected and analysed.

Results

A total of 485 (7.5%) of 6510 LBW neonates' mothers received MgSO4. Pre-eclamptic toxaemia (PET) [n=235 (48%)], eclampsia [n=90 (19%)] and Haemolysis, Elevated Liver enzymes, Low platelets (HELLP) syndrome [n=28 (6%)] were the main indicators for the administration of $MgSO_4$. Mothers in the $MgSO_4$+ group were older and had a higher parity. Seventy percent received antenatal steroids in the $MgSO_4$+ group and 30% of these were HIV positive. Neonates in the $MgSO_4$+ group had a lower gestational age ($p < 0.001$) and birthweight ($p<0.001$). A smaller number of neonates in the $MgSO_4$+ group required resuscitation and had higher oxygenation ($p=0.005$) on admission. A higher proportion of neonates in the $MgSO_4$+ group had lethargy, hypotonia ($p<0.001$), asphyxia ($p<0.001$), early onset sepsis (EOS) ($p<0.001$), intraventricular haemorrhage (IVH) ($p<0.001$), respiratory distress syndrome (RDS) ($p<0.001$), required respiratory support ($p<0.001$) and died ($p<0.001$).

In the multivariate logistic regression analysis; PET, asphyxia and hypotonia were associated with mortality.

Conclusion

There was an increase in neonatal morbidities and mortality in neonates whose mothers received $MgSO_4$+. Monitoring of these neonates, in addition to monitoring MgSO4+ levels to document a dose effect, is essential.

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