

Optimal Obstetric Management in Extreme Preterm Births: A Retrospective Study

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INTRODUCTION

Advancements in neonatal medical management over the past five years has significantly increased the numbers of foetuses being considered for delivery. Despite increasing knowledge in neonatal management post-birth, less is known regarding optimal obstetric management for mothers who undergo preterm (22-25+6 weeks) births.² To further expand this knowledge base, we conducted a literature search and retrospective study within Luton and Dunstable Hospital, UK to identify key obstetric management and clinical practices that can improve maternal and neonatal outcomes. These findings will guide future instances of extreme preterm delivery.

METHODS

1. Literature search

Aim: To identify current guidelines in obstetric management of mothers with extreme preterm delivery

Sample size: 23/139 papers collected met inclusion criteria.

Main Conclusions: i) Usefulness of antibiotics in preterm premature rupture of membranes (PPROM) cases³, ii) benefits of antenatal steroids, tocolytics and magnesium sulfate (MgSO₄)³. iii) Suggested effectiveness of cervical clerage⁴ and amnioinfusion⁵. iv) divided opinions about delivery type³.

2. Retrospective study

Aim: To analyse how different obstetric management methods performed at Luton and Dunstable Hospital, UK affect maternal or neonatal outcomes

Sample size: 93 patients (01/2020-01/2025), singleton pregnancies gestational age 22 weeks to 25+6 weeks

Statistics: Simple univariate and multivariate logistic regression models

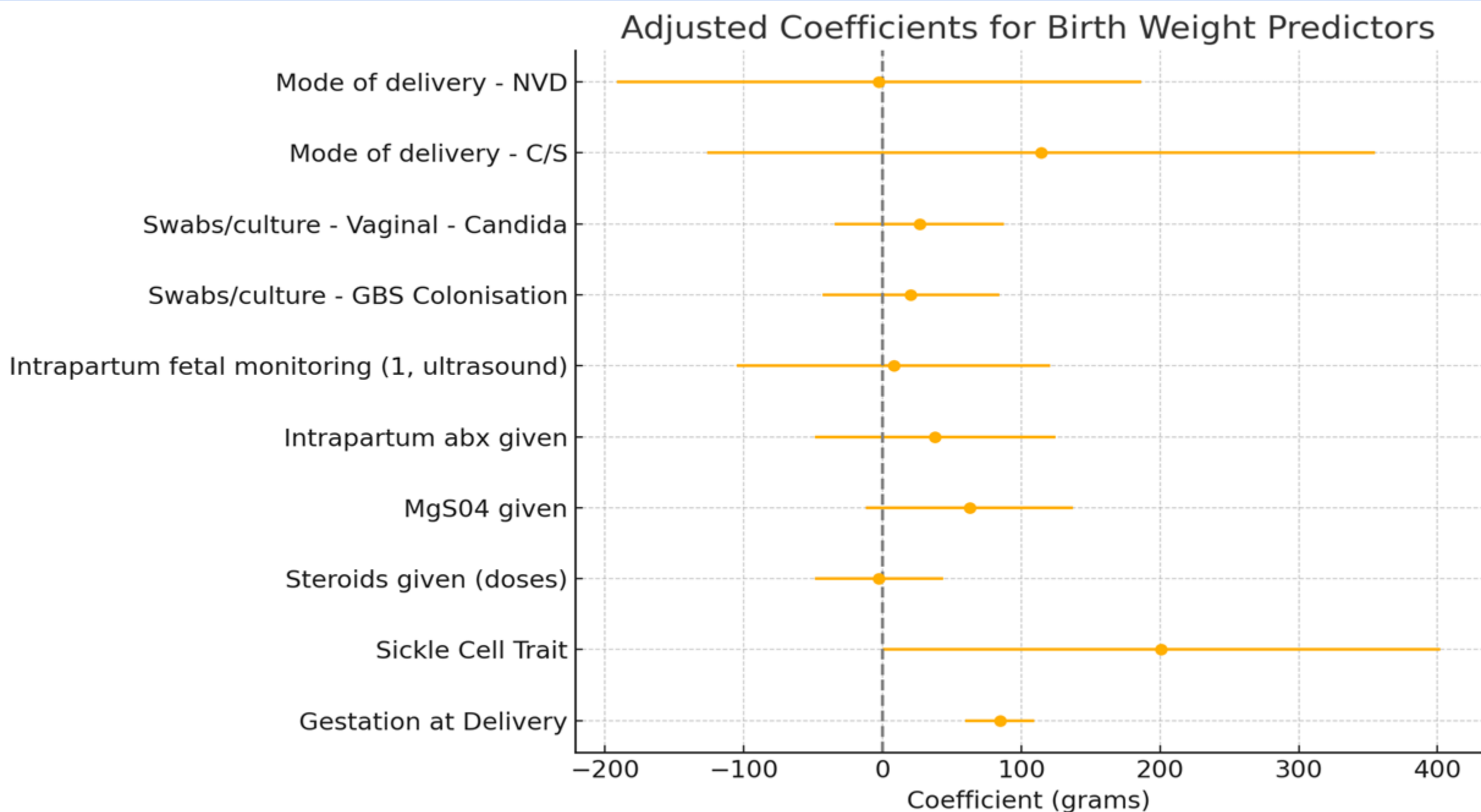


Fig 2: As expected, gestation age was strongly associated with lower neonatal morbidity and higher birth weight (+120g per additional week, P<0.0001). Intrapartum antibiotics, steroids and MgSO₄ and gestational age had strong protective effects in univariate analysis but significant reduction in neonatal mortality after covariates were accounted for only in MgSO₄ (p=0.011). Fig 2 shows the adjusted odds ratio (OR) and adjusted coefficients for key predictors. Interestingly caesarean section seems to improve birth weight outcomes, but normal vaginal delivery seems to reduce birth weight in our adjusted model.

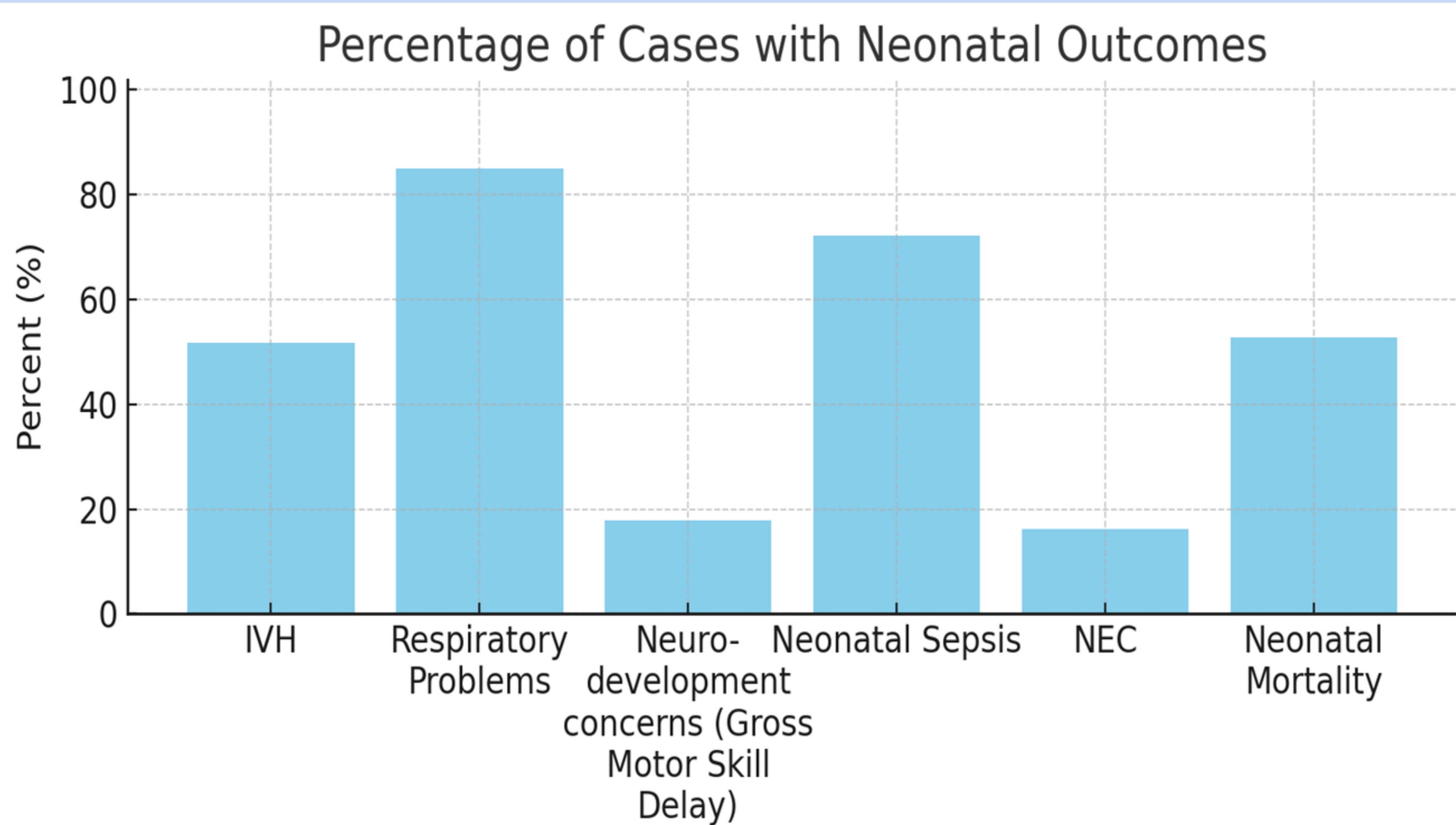
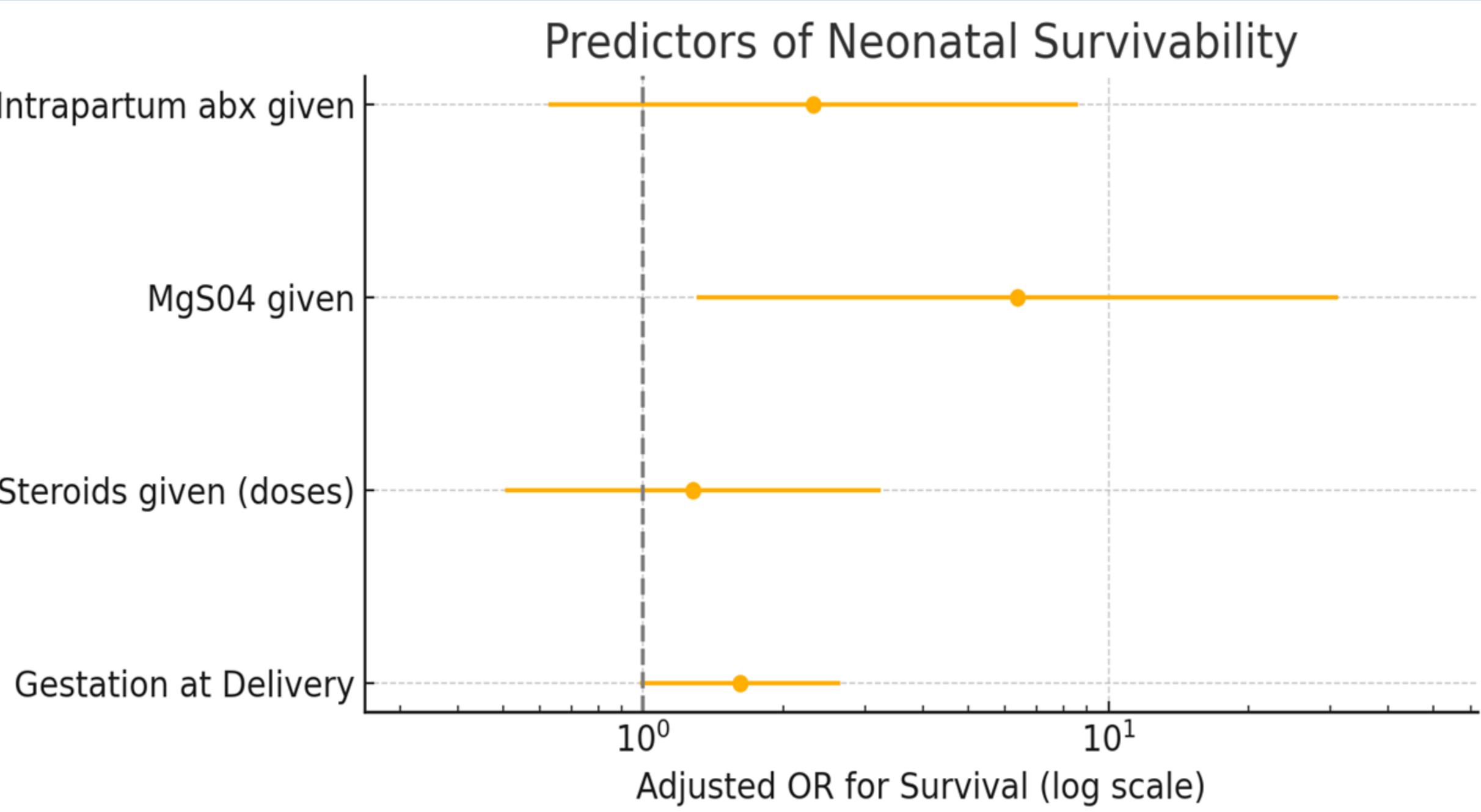
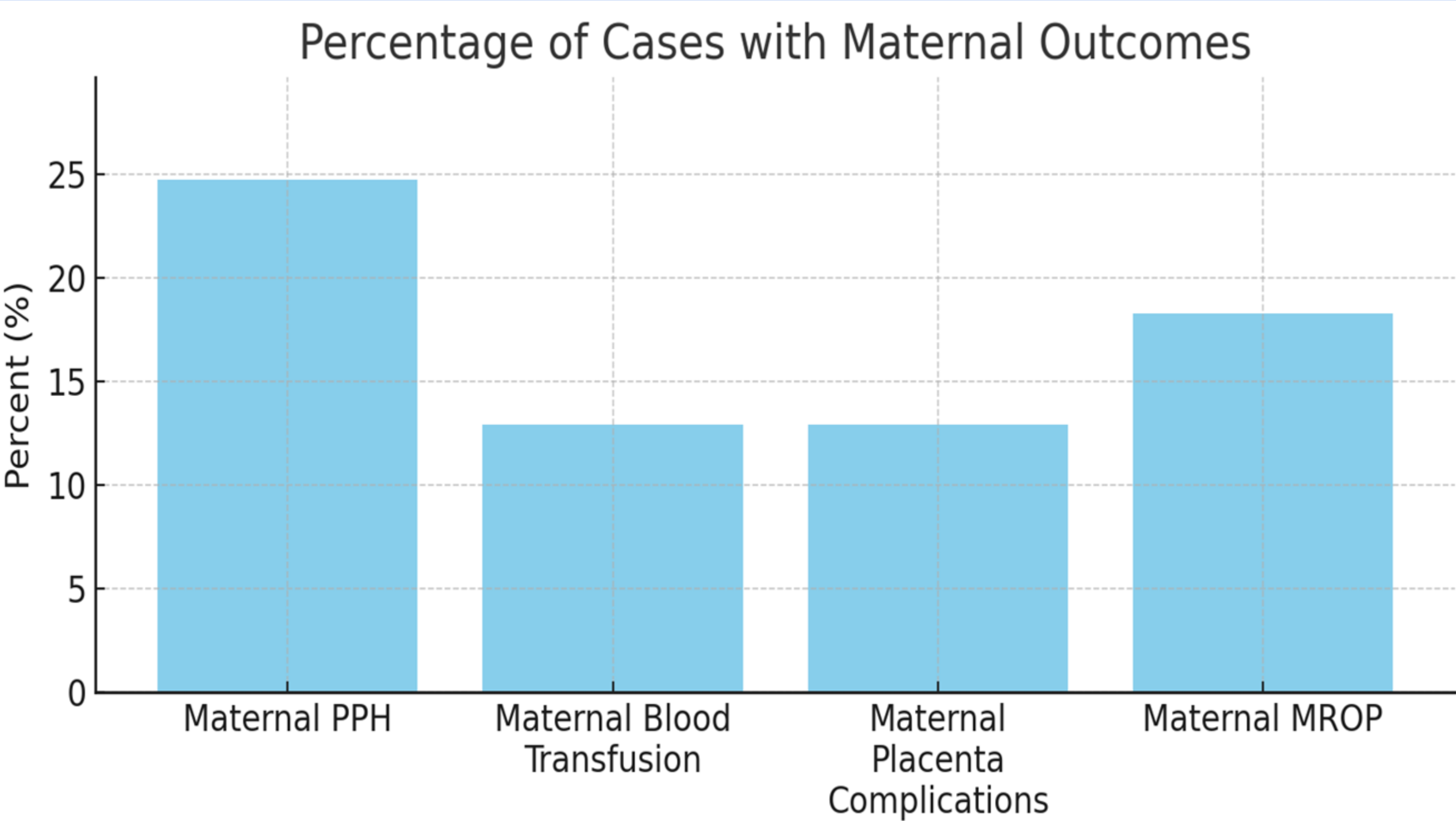


Fig 1: Maternal complications remained low in our study, with 24.7% of women experiencing PPH, 12.9% requiring blood transfusions and there were zero ICU or VTE incidences reported. Neonatal mortality was 47.3%, with high rates of respiratory distress (84.9%), intraventricular haemorrhage / IVH (51.6%) and eventual developmental concerns (41.9%).



CONCLUSIONS + LIMITATIONS

- In our dataset we found that only MgSO₄ seems to have a significant effect on neonatal survivability while other measures like steroids, antibiotics and gestational age had positive effects on univariate analysis but not with multivariate analysis. This highlights prevalence of confounding and indication bias within our data, small sample size and single centre study.
- Gestational age improves neonatal birth weight significantly in line with current literature⁶ but not significantly with infant mortality after multivariate analysis. Caesarean sections seem to improve birth weight over vaginal delivery which may add to current literature but should be treated cautiously. No obvious obstetric management variable seemed to improve maternal outcomes, compounded by the minimal complications in the data.
- We also failed to investigate the prolongation of gestation age (ie cervical clerage/tocolytics). Nonetheless this study adds support to current guidelines and further data, or meta-analysis is needed to observe more significant trends in improving maternal and neonatal outcomes.

REFERENCES

2: Hajek et al JPM 2013, 3:Dagklis et al WAPM/PMF 2023, 4: Goździewicz et al FDT 2021, 5:Vitner et al AJOG 2018, 6:Burguillo et al JPM 2015.