CORTICOSTEROIDS FOR WOMEN AT RISK OF PRETERM BIRTH OR WITH A FETUS AT RISK OF RESPIRATORY DISTRESS - ANTENATAL

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

• AIM
  • Appropriate administration of corticosteroids for women to minimise neonatal mortality and morbidity

• PATIENT
  • Woman at risk of preterm delivery between 23-34 weeks where neonatal resuscitation is planned
  • Woman who remains at risk of preterm birth <32 weeks gestation, who has received a course of antenatal steroids ≥14 days prior
  • Woman having an elective caesarean section ≤38 weeks gestation

• STAFF
  • Registered midwives
  • Student midwives
  • Medical staff

• EQUIPMENT
  • Syringe (5 ml)
  • 23 gauge needle

• CLINICAL PRACTICE
  
  Administration of Initial Course of Antenatal Corticosteroids
  • Prescribe an initial course of antenatal corticosteroids to any woman at high risk of preterm delivery in the next 7 days who at the time of assessment is < 34 weeks gestation
  • Prescribe Betamethasone 11.4 mg intramuscular injection, 2 doses given 24 hours apart

  Repeat Course of Antenatal Corticosteroids
  • Consider a single repeat course of antenatal corticosteroids for any woman at continued risk of preterm delivery at <32 weeks’ gestation, if the initial dose of antenatal corticosteroids was given more than ≥14 days prior
  • Prescribe Betamethasone 11.4 mg intramuscular injection, 2 doses, given 24 hours apart
  • Do not delay the decision for delivery or repeat tocolysis for the administration of a repeat course of corticosteroids

  Woman Having an Elective Caesarean Section
  • Consider prescribing an initial course of antenatal corticosteroids to any woman who is planning an elective caesarean section in the next 7 days, who at the time of birth will be ≤38 weeks gestation, particularly if she has not received antenatal steroids previously.
  • Prescribe Betamethasone 11.4 mg intramuscular injection, 2 doses, given 24 hours apart
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Administration
• Administer steroid to gluteal region

Woman with diabetes mellitus
• Consider hospital admission for close glucose monitoring and potential increase in insulin requirements in the short term
• Consult Obstetric physician
• Diabetes mellitus is not a contraindication to antenatal corticosteroid treatment for fetal lung maturation

• DOCUMENTATION
  • Integrated clinical notes
  • Medication chart
  • ObstetriX

• EDUCATIONAL NOTES
  Effect of an initial course of antenatal corticosteroids
A systematic review and meta-analysis has found that treatment with antenatal corticosteroids is associated with an overall reduction in:
• Neonatal death (RR 0.69, 95% CI 0.58 to 0.81, 18 studies, 3956 infants),
• Respiratory Distress Syndrome (RDS) (RR 0.66, 95% CI 0.59 to 0.73)
• Intraventricular Haemorrhage (IVH) (RR 0.54, 95% CI 0.43 to 0.69),
• Necrotising Enterocolitis (NEC) (RR 0.46, 95% CI 0.29 to 0.74),
• Need for respiratory support (RR 0.69, 95% CI 0.53, 0.90),
• Intensive care admissions (RR 0.80, 95% CI 0.65 to 0.99), and
• Systemic infections in the first 48 hours of life (RR 0.56, 95% CI 0.38 to 0.85).
No significant effects were found in the incidence of maternal death, chorioamnionitis or puerperal sepsis; or in chronic lung disease (CLD), birthweight, death in childhood or neurodevelopmental delay.

Repeat course of antenatal corticosteroids for women at continued risk of preterm birth
Repeat doses of antenatal corticosteroids reduce the incidence and severity of neonatal respiratory distress, and possibly the risk of serious infant morbidity in the first few weeks after birth. The short term benefits for babies support the use of repeat dose corticosteroids for women at risk of preterm birth.
An updated meta-analysis of 8 clinical trials and 5,224 infants found treatment with repeat dose(s) of corticosteroid:
• Reduced respiratory distress by 17% [RR 0.83, 95% CI 0.75, 0.92], The number needed to treat (NNT) to prevent one case of respiratory distress syndrome was 17, 95% CI 11 to 32
• Reduced the incidence of severe respiratory distress by 18% (RR 0.82, 95% CI 0.72, 0.93) and serious infant morbidity by 13% (RR 0.87, 95% CI 0.79, 0.97).
• No statistically significant difference was found for any of the other primary outcomes including other measures of respiratory morbidity, fetal and neonatal mortality, periventricular haemorrhage, periventricular leucomalacia and maternal infectious morbidity.
• Is associated with a significantly increased risk of caesarean section (RR 1.11, 95% CI 1.01 to 1.22)
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The eight trials all used repeat courses of betamethasone, some trials used weekly courses of corticosteroids until maximum of 34 weeks gestation, while some others used a single repeat course.

- A further meta-analysis of 10 trials and 5650 babies in 2011 showed that at early childhood follow-up, no statistically significant differences were seen for infants exposed to repeat prenatal corticosteroids compared with unexposed infants for the primary outcomes (total deaths; survival free of any disability or major disability; disability; or serious outcome) or in the secondary outcome growth assessments. 6

- Treatment with repeat dose(s) of corticosteroid was associated with a reduction in mean birthweight (mean difference (MD) -75.79 g,95% CI -117.63 to -33.96, nine trials, 5626 infants) 6
  - While more follow-up data are emerging about the ideal dosing regimen, the current recommended course at RHW is the one similar to the Garite trial3.
  - If the delivery is imminent between 7 and 14 days after the initial course and the patient is <32 weeks gestation, a single dose of betamethasone (12 mg IM), may also be considered.

Extremely preterm birth

- In general, active resuscitation of infants born at less than 24 + 0 weeks is not encouraged. Therefore steroid administration would not usually be given at <24 weeks, and senior obstetrician and neonatal consultation is recommended. However, in those women who choose neonatal resuscitation between 23 and 24 weeks gestation, steroids should be given.

Elective Caesarean Section ≤38+ weeks gestation

- A course of antenatal corticosteroids may also be considered for any woman undergoing elective caesarean section up to 39 weeks’ gestation
- A course of antenatal corticosteroids may also be considered for any woman if there are other risk factors for respiratory morbidity such as diaphragmatic hernia
- From the Cochrane review of steroids at term prior to caesarean section, prophylactic betamethasone appeared to significantly decrease the risk of admission for respiratory distress to neonatal special care units (all levels) (risk ratio (RR) 0.45 95%confidence interval (CI) 0.22 to 0.90), and particularly to neonatal intensive care units (RR 0.15; 95% CI 0.03 to 0.64). For approximately 37 to 39 women receiving prophylactic steroids, one more additional admission to special care or NICU would be prevented. 5
- No statistically significant reduction was found in the incidence of neonatal respiratory distress syndrome (RR0.32; 95% CI 0.07 to 1.58), transient tachypnoea of the newborn (RR 0.52; 95%CI 0.25 to 1.11), need for mechanical ventilation (RR 4.07; 95% CI 0.46 to 36.27) and length of stay in NICU (mean difference -2.14 days; 95% CI -5.58 to 1.30)
- Unlike pre-term babies, there is limited long term data on outcomes of term babies given steroids

RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- Preterm Labour Management
- Preterm Premature Rupture of Membrane (PPROM): Assessment and Management Guideline
- Nifedipine for Tocolysis
- Estimating due date
- Pre-eclampsia - Intrapartum Care
- Placenta Praevia
- In Utero Transfers at 23 – 25 Weeks Gestation
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- REFERENCES

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