MECONIUM STAINED AMNIOTIC FLUID (MSAF)

Keywords: mec, meconium, amniotic fluid, meconium stained liquor, MSL, MSAF, laryngoscopy, continuous fetal heart rate monitoring, neonatal suction, oropharyngeal, neonatal observations, meconium observations, meconium aspiration syndrome, MAS, suctioning on the perineum, intrapartum suctioning

MECONIUM STAINED AMNIOTIC FLUID QRG

LABOUR
First stage
1. Continuous fetal heart rate monitoring - cardiotocography (CTG).
2. Document meconium in medical record & partogram
3. Transfer from Family Birth Centre to Labour & Birth Suite for continuous fetal heart rate monitoring & birth (consider parity & stage of labour at transfer). If birth is imminent call the paediatric RMO and registrar to FBC

Second stage
1. Neonatal RMO and Registrar attendance at birth to assess neonate.
2. No intrapartum suctioning of neonate’s mouth /pharynx ‘on the perineum’.

NEONATAL CARE (AT MINIMUM)

Neonatal care: Immediate
1. Term neonate:
   • Vigorous: Stays with mother & routine care (plus meconium obs.)
   • Not vigorous: Do not stimulate, transfer to resuscitaire for tracheal suction under direct vision by Neonatal medical team and resuscitation as required.
2. Preterm (all): To resuscitaire for Neonatal Medical Team review, suction / resuscitation as determined by individual situation.

Neonatal care: Subsequent
1. Close observation of the neonate:
   • Temperature, heart rate, respirations, SpO₂ (at 1, 2, and 4hr), colour, tone, feeding, wellbeing.
   • As for all births PLUS: 2 hourly until 12 hours of age.
2. Contact the Neonatal Medical Team for immediate review if observations outside normal parameters.
3. Keep the neonate warm, cluster cares and educate the parents.

Note: Neonates may require specialist care in the Neonatal Intensive Care Unit.

Note: This flowchart represents minimum care & should be read in conjunction with the following full guideline & disclaimer. Additional care should be individualised as needed.
AIM

- To provide guidance when caring for a labouring woman with ruptured membranes and meconium stained amniotic fluid and to ensure a safe environment at birth.

BACKGROUND

Meconium can be found in the gastrointestinal tract of the fetus from as early as 10 – 16 weeks gestational age. Although 75% of meconium is water, the remaining 25% consists of gastric secretions, bile salts, mucous, vernix, lanugo, blood, pancreatic enzymes, free fatty acids and squamous cells.

Meconium staining of the amniotic fluid (MSAF) occurs in around 10-15% of labours. MSAF rarely occurs before 30 weeks gestation. In a preterm fetus, MSAF can suggest possible infection or hypoxia. The incidence of this condition increases with longer gestations (mature fetus) and approximately 20% of newborns have MSAF at term. Neonatal aspiration of MSAF can become a serious problem if pulmonary hypertension and severe hypoxaemia develop, requiring expert neonatal intensive care. See also KEMH Clinical Guidelines, NCCU: Respiratory: Meconium Aspiration Syndrome.

Oro/nasopharyngeal suctioning is routinely used to clear secretions for non-vigorous neonates, although benefits / harms for term and preterm neonates are being reviewed.

KEY POINTS

1. If the amniotic fluid has been clear in labour and then becomes MSAF, the fetus may be compromised through infection or hypoxia.
2. Amnioinfusion should not be used for the routine treatment of suspected fetal compromise with meconium stained amniotic fluid.
3. The Neonatal RMO and Registrar are to attend births where there is MSAF.

DEFINITIONS OF TYPES OF AMNIOTIC FLUID

There is limited evidence of the use of a grading system for MSAF and its impact on neonatal outcomes. Regardless of the consistency of MSAF, non-vigorous neonates receive suctioning after birth.

MANAGEMENT OF MECONIUM STAINED AMNIOTIC FLUID

FIRST STAGE OF LABOUR:

Continuous electronic fetal heart rate monitoring is required.

All women admitted to the Family Birth Centre who have or develop any meconium stained amniotic fluid must be transferred to the L & BS for continuous fetal heart
rate monitoring and birth. The decision to transfer shall take into account the woman’s parity and stage of labour.

SECOND STAGE OF LABOUR
For all births at King Edward Memorial Hospital, Labour and Birth Suite and the Family Birth Centre, where there is meconium staining of the amniotic fluid, the Neonatal RMO and Registrar are to attend the birth, to make an assessment of the baby. See also KEMH Clinical Guidelines: O&M: Intrapartum Care: Paediatric Attendance for ‘At Risk’ Births: LBS QRG and NCCU: Resuscitation & Admission: Who Attends Births.

- Provide handover to the Neonatal team. Notify of the upcoming birth and relevant antenatal and intrapartum factors (including any fetal heart rate findings, chorioamnionitis, fetal blood sample results and any interventions).

SUCTIONING AT BIRTH
Suctioning ‘on the perineum’ of the neonates mouth and pharynx before birth of the shoulders is not recommended for routine practice.

Upper airway suctioning shall occur if the neonate has any evidence of meconium present in the oropharynx and / or when the neonate shows any signs of compromise or has depressed vital signs.

NEONATAL CARE: MECONIUM STAINED AMNIOTIC FLUID
IMMEDIATE CARE

- Suctioning is not required if the neonate is term and vigorous at birth (i.e. good spontaneous respiratory effort, heart rate > 100 and good muscle tone) and the neonate can remain with the mother and have routine post birth care. Clean the mouth and nose, dry the neonate, stimulate and reposition as required.

- A vigorous preterm neonate shall be assessed on the neonatal resuscitaire.

- A non-vigorous neonate at birth shall receive laryngoscopy and tracheal suction under direct vision shall be carried out immediately by the neonatal Medical Officer. The neonate should not be stimulated at all, even by drying, until suction is completed. Tracheal suction is performed promptly and before any assisted or spontaneous respirations. The neonatal Medical Officer should consider the potential benefits of suctioning meconium against the urgent need for other resuscitation methods.

- For suctioning: The meconium aspirator device is attached to the adapter of the endotracheal tube (after intubation), then connected to a negative pressure source (not exceeding 100mmHg), occluding the side port and withdrawing over a
few seconds. Repeated intubation may cause further delays in resuscitation and is not routinely encouraged.

SUBSEQUENT CARE

- Observe all babies with a history of meconium stained amniotic fluid for signs of respiratory distress. Respiratory distress is 100 times more likely in neonates born through MSAF than clear fluid. Although MSAF is common and usually does not require intervention (if the neonate is in good condition at birth), the neonate may deteriorate over the first 12-24 hours with respiratory distress from meconium aspiration and should be observed during this period. The majority (98%) of vigorous neonates born through MSAF who develop RDS show signs within 12 hours of birth.

- Observations shall be performed as for all births (see KEMH Clinical Guidelines, O&M: Neonatal: Immediate Care at Birth [routine obs. p.2]). Additionally, MSAF observations (see below) shall be repeated 2 hourly until 12 hours of age.

- These observations shall include:
  - Temperature (hyperthermia & hypothermia increase metabolic rate and oxygen consumption, increasing risk of hypoxia)
  - Heart rate
  - Respirations- including chest wall movements, pattern, effort & rate (Tachypnoea, apnoea, grunting, rib/chest retractions, nasal flaring, crackles/wheeze, asymmetric chest expansion, decreased/absent breath sounds, and increased anterior-posterior diameter can indicate respiratory distress). Document abnormal findings & contact Neonatal team.
  - Oxygen saturation- SpO2 (identifies decreased saturation) - at 1, 2 & 4 hours
  - Muscle tone
  - Skin colour, including perfusion
  - Feeding
  - General wellbeing.

- All observations outside normal parameters shall be reported to the Neonatal Medical Officer and the baby reviewed immediately.

- Maintain a neutral thermal environment and keep the neonate normothermic - Prevents the increased metabolic demands and oxygen consumption of cold / heat stress

- Cluster neonatal cares- Reduces oxygen consumption from activity / stress.
• Educate the parents about the regular observations and the signs of respiratory distress, to promote understanding, reduce anxiety, and increase parental confidence."
REFERENCES / STANDARDS


National Standards – 1- Care Provided by the Clinical Workforce is Guided by Current Best Practice
6- Clinical Handover
9- Recognising and Responding to Clinical Deterioration in Acute Health Care

Legislation - Nil

Related Policies – KEMH Clinical Guidelines:

- O&M: Intrapartum Care; Paediatric Attendance for ‘At Risk’ Births; LBS ORG; Fetal Compromise (Acute); Management if Suspected: Amnioinfusion; Birth Management; Partogram
- O&M: Neonatal Care: Neonatal Observations; Immediate Care at Birth
- NCCU: Resuscitation & Admission: Who Attends Births; Respiratory: Meconium Aspiration Syndrome

Other related documents – KEMH NETS WA Information for Parents: Meconium Aspiration Syndrome (2014)

RESPONSIBILITY

Policy Sponsor Nursing & Midwifery Director OGCCU
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