Management of Meconium at Birth

Abstract

Objective: To provide clinician direction that is based on the best evidence available on suctioning at the perineum for infants born with meconium-stained amniotic fluid.

Evidence: The Medline database was searched for articles published in English from 2000 to 2008 on the topic of management of meconium at birth.

Values: The recommendation was made according to guidelines developed by the Canadian Task Force on Preventive Health Care.

Recommendation

It is recommended that institutions adopt a policy indicating that non-suctioning is as safe as routine suctioning at the perineum for infants born with meconium-stained amniotic fluid. (IA)


INTRODUCTION

Meconium aspiration syndrome (MAS) may develop in a small percentage of infants born with meconium-stained amniotic fluid. Intrapartum suctioning of the airway after delivery of the head but before delivery of the shoulders has been advocated as a means of reducing the incidence of MAS. However, the 2005 Neonatal Resuscitation Guidelines published by the American Heart Association/American Academy of Pediatrics1 and endorsed by the Canadian Neonatal Resuscitation Program Steering Committee2 no longer recommend routine intrapartum suctioning of the oropharynx and nasopharynx of neonates delivered following labours complicated by meconium.

CURRENT EVIDENCE

A careful review of the recent literature indicates clearly that a policy of non-suctioning is as safe as routine suctioning at the perineum for infants born with meconium-stained amniotic fluid. Risks of intrapartum suctioning include causing the fetus to “gasp,” and causing vagal stimulation and postnatal fetal depression and / or bradycardia. Instead, the baby should be transferred quickly to the neonatal team, who will initiate management of the neonatal airways as indicated. The SOGC supports this new policy of not suctioning meconium at the perineum by the obstetric team.

Evidence of the effectiveness of intrapartum suctioning comes from the results of a single retrospective cohort study3 indicating a non-significant trend towards improved outcomes. The results of that study have been subsequently contradicted by two other studies4,5 showing equivalent outcomes with no intrapartum suctioning. Suctioning of meconium at the perineum has been long recommended in the USA, but because of the lack of supporting evidence, has never formed part of the Newborn Life Support course run by the Resuscitation Council in the UK.

A 2004 randomized controlled study by Vain et al.6 included 2514 patients from 12 centres (Argentina 11, USA 1). All patients had meconium-stained amniotic fluid at a gestational age of at least 37 weeks, and cephalic presentation. Patients were randomly assigned to suctioning of the oropharynx and nasopharynx (including the hypopharynx) before delivery of the shoulders (n = 1263) or no suctioning before delivery (n = 1251). The postnatal delivery-room management followed Neonatal Resuscitation Program guidelines3 which recommend tracheal suction only for non-vigorous infants. Clinicians diagnosing the syndrome and designating other study outcomes were masked to group assignment. A “no informed

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consent” protocol was used. Analysis was by intent-to-treat. No significant difference between treatment groups was seen in the incidence of MAS (52 [4%] suction vs. 47 [4%] no suction; relative risk 0.9; 95% CI 0.6–1.3), need for mechanical ventilation for MAS (24 [2%] vs. 18 [1%]; RR 0.8; 95% CI 0.4–1.4), mortality (9 [1%] vs. 4 [0.3%]; RR 0.4; 95% CI 0.1–1.5), or in the duration of ventilation, oxygen treatment, and hospital length of stay. Meconium was “thick” or “moderately thick” in 39% of patients in each treatment arm. There were no statistical differences in outcomes between these two groups, although the study was not powered for this outcome. Infants in other high-risk groups such as those with non-reassuring fetal heart rate, delivered by Caesarean section, or requiring positive-pressure ventilation did not seem to benefit from intrapartum suctioning. The conclusion of the authors was that routine intrapartum oropharyngeal and nasopharyngeal suctioning of term-gestation neonates born with meconium-stained amniotic fluid does not prevent MAS.

SUMMARY

The SOGC supports and agrees with the guidelines of the American Heart Association, The American Academy of Pediatrics, and the Canadian Neonatal Resuscitation Program Steering Committee, which no longer recommend routine intrapartum suctioning of the oropharynx and nasopharynx of neonates delivered following labours complicated by meconium.

RECOMMENDATION

The quality of evidence reported in this document has been assessed using the Evaluation of Evidence criteria in the Report of the Canadian Task Force on Preventive Health Care (Table).

It is recommended that institutions adopt a policy indicating that non-suctioning is as safe as routine suctioning at the perineum for infants born with meconium-stained amniotic fluid. (IA)

REFERENCES