AMNIOINFUSION

Keywords: amnioinfusion, oligohydramnios, intrauterine transfusion, variable decelerations

AIM

- To prevent frequency or severity of variable decelerations in the presence of oligohydramnios leading to improved neonatal and maternal outcomes.

BACKGROUND INFORMATION

Oligohydramnios can cause intrapartum compression of the umbilical cord. This can result in variable decelerations of the fetal heart rate which may be associated with fetal hypoxia, acidosis and increased incidence of operative delivery. In the presence of oligohydramnios the use of intrapartum amnioinfusion has been shown to significantly improve neonatal outcomes and decrease the rate of caesarean section, without increasing the rate of postpartum endometriosis.1

Evidence shows that amnioinfusion in the presence of thick meconium liquor during labour does not reduce the risk of moderate or severe meconium aspiration syndrome, perinatal death, or other major maternal or neonatal disorders.2 Routine use of amnioinfusion in the presence of thick meconium liquor is not recommended in facilities with standard antenatal surveillance. However, in settings with limited facilities for perinatal surveillance use of amnioinfusion for the ‘high risk’ fetus is beneficial.2, 3, 4, 5

KEY POINTS

1. Normal saline and Hartman’s solutions are both suitable for use with amnioinfusion.6, 7 However, Hartman’s solution approximates amniotic fluid the closest in electrolyte and pH composition and may be the most suitable solution to use.6

2. The infusion solution should be at room temperature for term pregnancies, however it is recommended the solution should be warmed (via a blood warmer) for a preterm fetus.

3. The infusion should be immediately ceased if any complications transpire, or if intrauterine baseline pressure increases by more than 15mm Hg, if there is uterine hypertonus, if polyhydramnios is confirmed on ultrasound, or if there is maternal or fetal intolerance to the procedure.

CONTRAINDICATIONS

- Chorioamnionitis8
- Placental abruption9
- Severe fetal heart rate abnormalities9
- Maternal immunosuppression9
- Multiple pregnancy10
- Non vertex presentation10
- Placenta praevia10
- Maternal infection that may be transmitted to the fetus10
- Uterine scarring10
- Uterine hypertonus10
- Known fetal anomaly incompatible with life10
- Known obstetric or maternal complication10
### COMPLICATIONS ASSOCIATED WITH AMNIOINFUSION

- Uterine hypertonus and uterine overdistension\(^4,5\)
- Uterine rupture with a previous scar\(^4,5\)
- Placental abruption\(^4\)
- Chorioamnionitis\(^4\)
- Non reassuring fetal heart rate\(^4\)
- Maternal pulmonary embolus\(^4\)
- Maternal death\(^4,11\)
- Amniotic fluid embolism\(^11\)
- Umbilical cord prolapse\(^5\)

### PROCEDURE

<table>
<thead>
<tr>
<th>Procedure</th>
<th>ADDITIONAL INFORMATION</th>
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</thead>
<tbody>
<tr>
<td><strong>1</strong> Prior to the procedure</td>
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<tr>
<td>Obtain verbal consent from the woman.</td>
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<tr>
<td>Encourage the woman to empty her bladder.</td>
<td>This confirms presentation, establishes the dilatation, and excludes the presence of cord.(^12)</td>
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<td>Ensure there are no contra-indications to insertion of an intrauterine pressure catheter or performing an amnioinfusion.</td>
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<tr>
<td><strong>2</strong> Inserting the catheter</td>
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<td>2.1 Perform a vaginal examination</td>
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<td>2.2 Insert an intrauterine pressure catheter (IUPC) according to manufacturer’s instructions.</td>
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<td>See Clinical Guideline, O&amp;M, Intrapartum Care: Labour First Stage: Intrauterine Pressure Catheter Insertion</td>
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<tr>
<td>2.3 Connect the primed intravenous tubing with the amnioinfusion solution to the infusion port on the IUPC.(^12)</td>
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<td><strong>3</strong> Infusing the solution</td>
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<tr>
<td><strong>3.1 Bolus infusion</strong></td>
<td>The solution infused is recommended to be at room temperature.(^2) Studies have shown there is no benefit to warming saline compared to room temperature saline.(^13) Amnioinfusion solution of 37°C for a preterm gestation is recommended.(^10) A blood warmer may be used in this situation. Rapid infusion can increase risk for transporting of amniotic fluid into maternal circulation.(^1).</td>
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<tr>
<td>Infuse the initial bolus rate of chosen solution at 480mL / hour until 500mL is infused.</td>
<td>Note: a staff member must be present at all times during the bolus infusion.</td>
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</tbody>
</table>
PROCEDURE

3.2 Maintenance infusion

Then continue the infusion at a rate of 180mL/hour up to a total of another 500mL of solutions if tolerated.

ADDITIONAL INFORMATION

The total amount that may be infused should not be more than 1000mL before review by the team Consultant.

4 Ceasing the infusion

Cease the infusion if:

- the intrauterine baseline pressure is increased by more than 15mm Hg.²
- if the uterus does not rest between contractions.²
- if polyhydramnios is confirmed on ultrasound.²
- fetal or maternal intolerance to the procedure occurs

An obstetric consultant must review and order a second infusion to be commenced if variable fetal heart rate patterns recur.¹⁴

Consider using oxytocin if a delay in progress of labour occurs.

The use of amnioinfusion has been associated with increased uterine tone and precipitate labours, which though rarely can lead to significant maternal complications.¹¹

5 Observations

15 minutely monitoring of intrauterine pressures and assessment of uterine contractions.²

Report any abnormalities to the doctor when they occur.

Assessment of the frequency and tone of the uterine contractions must be done before a decision to use an oxytocin is implemented.

6 Documentation


Observe for uterine overdistension or hypertonic contractions.²
# REFERENCES (STANDARDS)