5.7 MANAGEMENT OF SUSPECTED ACUTE FETAL COMPROMISE

Key words: fetal compromise, intrapartum, fetal distress

AIM

To identify suspected or actual fetal compromise and initiate early intervention to promote placental and umbilical blood flow to decrease risk of hypoxia and acidosis.

KEY POINTS

1. Fetal compromise in labour may be due to a variety of pathologies including placental insufficiency, uterine hyperstimulation, maternal hypotension, cord compression and placental abruption. Identification and management of reversible abnormalities may prevent unnecessary intervention.

2. Continuous electronic cardiotocograph (CTG) monitoring should be employed when fetal compromise is detected at the onset of labour or develops during labour.

3. A normal CTG is associated with a low probability of fetal compromise and has the following features
   - Baseline rate 110-160.
   - Baseline variability 5-25bpm.
   - Two accelerations of 15bpm for 15 seconds during a 20 minute period
   - No decelerations.

4. The following features are unlikely to be associated with significant fetal compromise when occurring in isolation.
   - Baseline rate 100-109
   - Absence of accelerations.
   - Early decelerations
   - Variable decelerations without complicating features

5. The following features may be associated with significant fetal compromise and require further action
   - Fetal tachycardia
   - Reduced baseline variability
   - Complicated variable decelerations
   - Late decelerations
   - Prolonged decelerations
6. The following features are very likely to be associated with significant fetal compromise and require immediate management, which may include urgent birth
   - Prolonged bradycardia (< 100bpm for > 5 minutes).
   - Absent baseline variability
   - Sinusoidal pattern.
   - Complicated variable decelerations with reduced baseline variability.
   - Late decelerations with reduced variability.

7. There is no research evidence evaluating the benefits or risks associated with the short term use of maternal facial oxygen therapy in cases of suspected fetal compromise.2

MANAGEMENT

For ALL suspected / recognised fetal heart rate (FHR) abnormalities causing fetal compromise management includes:

- Informing the Labour and Birth Suite Co-ordinator, the Obstetric Registrar /Senior Registrar or Consultant for immediate review.
- Apply continuous fetal heart cardiotocograph (CTG) monitoring (if not in progress).
- Call for assistance.
- Insert intravenous (IV) access if not in situ. Consider collecting blood for group and hold.
- Do not leave the room / the woman unattended.

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<th>FETAL HEART ABNORMALITY</th>
<th>POSSIBLE REASONS FOR THE FHR ABNORMALITY</th>
<th>MANAGEMENT</th>
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| Bradycardia / prolonged deceleration | • Maternal hypotension3, 4  
• Cord prolapse3, 4 or compression4, 6  
• Uterine hypertonia3, 4, 5  
• Scar dehiscence4, 5  
• Abruption placenta4, 5  
• Rapid fetal descent  
• Procedures contributing include:  
  ➢ vaginal examinations6  
  ➢ inserting/sitting for epidural insertion3, 6  
  ➢ obtaining a fetal blood sample6 |
|                          | 1. Reposition the woman7, 8 – e.g. lateral position  
2. Administer bolus IV fluids5, 7  
3. Discontinuation of oxytocin or decreasing rate of infusion (if in progress)5, 8, 9  
4. Check the maternal blood pressure (BP)  
5. Check the maternal pulse – to differentiate maternal pulse rate from the fetal heart rate (FHR)  
6. Perform a VE to exclude cord prolapse or rapid cervical dilatation if the bradycardia persists.7 Consider application of a fetal scalp electrode.  
7. Assess abdominal tone to exclude a tonic uterus3, 4  
8. Prepare for assisted delivery or emergency caesarean section if bradycardia does not resolve. |
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| Variable deceleration/s | • Cord compression\(^3\)  
May be exacerbated by:  
- Maternal positioning  
- Direct cord involvement e.g. cord entanglement, short or knotted cord  
- Oligohydramnios  
- Fetal activity  
- Abnormal uterine activity | 1. Reposition the woman\(^7,8\) – alternative side e.g. left lateral.  
2. Administer bolus IV fluids.  
3. Perform a VE to exclude cord prolapse or rapid cervical dilatation if the variables persist.\(^3,7\) Consider application of a fetal scalp electrode.  
4. Assess uterine tone  
5. Consider amnioinfusion e.g. circumstances of oligohydramnios\(^4\). |
| Late deceleration/s | • Fetal hypoxia\(^3\) – uteroplacental insufficiency\(^4\)  
• Decreased fetal oxygenation may be caused by:  
  - Uterine Hyperstimulation\(^4\)  
  - Maternal conditions e.g. hypertension, smoking, hypotension, cardiac status, anaemia, diabetes\(^5\)  
  - Fetal/placental e.g. post-term, intrauterine growth restriction, abruptio placenta, haemorrhage\(^4\) | 1. Reposition the woman\(^3,7,8\) – alternative side e.g. left lateral  
2. Increase bolus IV fluids\(^4\)  
3. Assess maternal vital signs including uterine tone/activity\(^4\)  
4. Cease oxytocic\(^3,4\)  
5. Consider tocolytic therapy e.g. terbutaline\(^3\).  
6. Initiate procedures to assist determination of acid-base status e.g. fetal scalp blood sampling\(^4\)  
7. Prepare for assisted delivery or emergency caesarean section |
| Sinusoidal pattern | • Cerebral hypoxia\(^3\)  
• Severe anaemia e.g. fetal-maternal transfusion, Rh isoimmunisation, fetal infection, antepartum haemorrhage (APH), twin-to-twin transfusion\(^3\) | 1. Cease oxytocic.  
2. Administer bolus IV fluids  
3. Perform maternal vital signs – including vaginal discharge, pain  
4. Assess uterine tone  
5. Collect equipment that may be required e.g. real time scanner, blood collection tubes for Kleihauer  
6. Prepare for emergency caesarean section\(^3\). |
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<td>Fetal tachycardia</td>
<td>• Maternal tachycardia&lt;sup&gt;3, 4&lt;/sup&gt;</td>
<td>1. Reposition the woman&lt;sup&gt;3, 8&lt;/sup&gt;</td>
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<td>• Maternal fever&lt;sup&gt;3, 4&lt;/sup&gt;</td>
<td>2. Assess maternal pulse, temperature, and BP&lt;sup&gt;3, 4&lt;/sup&gt;</td>
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<td>• Extreme prematurity&lt;sup&gt;3&lt;/sup&gt;</td>
<td>3. Provide IV hydration&lt;sup&gt;3&lt;/sup&gt; – increase IV rate&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>• Drugs e.g. beta sympathomimetics, methamphetamines&lt;sup&gt;3, 4, 7&lt;/sup&gt;</td>
<td>4. Consider discontinuation of oxytocin infusion, uterotonic agents, and consider tocolysis</td>
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<td>• Fetal hypoxia&lt;sup&gt;3&lt;/sup&gt;</td>
<td>5. Antibiotics may be required&lt;sup&gt;7&lt;/sup&gt;</td>
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<td></td>
<td>• Infection - fetal&lt;sup&gt;3&lt;/sup&gt;, maternal&lt;sup&gt;7&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>• Fetal tachyarrhythmia&lt;sup&gt;3, 4&lt;/sup&gt;</td>
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<td></td>
<td>• Maternal dehydration&lt;sup&gt;4, 5&lt;/sup&gt;</td>
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<td>• Maternal medical disorders&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>Decreased variability</td>
<td>• Fetal acidaemia&lt;sup&gt;7&lt;/sup&gt;</td>
<td>1. Reposition the woman&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>• Fetal sleep state&lt;sup&gt;7&lt;/sup&gt;</td>
<td>2. Hydration – administer IV fluid bolus&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>• Medications e.g. opioids, magnesium sulphate, β-blockages&lt;sup&gt;7&lt;/sup&gt;</td>
<td>3. Fetal scalp stimulation / vibroacoustic stimulation (if no FHR accelerations)&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>• Extreme prematurity&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>• Suspected abnormalities of the fetus</td>
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<tr>
<td></td>
<td>• Supine Hypotension</td>
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<td>• Hypoglycaemia</td>
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**REFERENCES**