INTRAUTERINE PRESSURE CATHETER (IUPC)

Keywords: IUPC, intrauterine pressure catheter, measuring contractions

PURPOSE

- To accurately measure the frequency, duration and pressure of uterine contractions.
- To collect an amniotic fluid sample for laboratory analysis.
- To perform amnioinfusion. While amnioinfusion is not recommended for the routine treatment of variable decelerations in labour, in a small number of cases where fetal blood sampling is not possible or contraindicated and caesarean section is relatively contraindicated, amnioinfusion may confer a small benefit\(^3\).

KEY POINTS

1. The intrauterine pressure catheter (IUPC) should not be left in situ for longer than 24 hours.
2. Prior to attempting insertion the manufacturer’s product instructions should be read - different companies may have product insertion variations.
3. Intrauterine pressure recordings vary according to site of where the recording is taken from – higher amplitude is found in the fundus, decreasing in the middle portion of the uterus, and further decreases in the lower portion near the cervix.\(^1\)
4. The presence of thick meconium may cause inaccurate readings of amplitude of the contractions.\(^1\)
5. Prior to insertion of an IUPC placental localisation should be found to decrease risk of extraovular placement.\(^2\)
6. IUPC insertion should be administered without any force or resistance.\(^2\)
7. The IUPC is for single item use only.
8. Ensure the catheter, cable and CTG monitor are compatible before insertion

INDICATIONS

- To assess the adequacy of spontaneous contractions in cases of arrested cervical dilatation.
- To facilitate titration of the oxytocins dosage during the induction or augmentation of labour.
- To clarify the relationship between the timing of the deceleration and the contraction.

CONTRAINDICATIONS

An intrauterine pressure catheter should not be inserted in the following circumstances:

- Diagnosed or suspected placenta praevia
- Bleeding of undetermined origin
- Non-rupture of amniotic membranes
- Uterine infection

RISK FACTORS / COMPLICATIONS

- Infection\(^1,\ 2\)
- Postpartum endomyometritis\(^1\)
- Uterine perforation\(^1,\ 2,\ 3\)
- Umbilical core perforation\(^1,\ 3\), cord entanglement\(^2\)
- Extra-membranous catheter placement leading to complications e.g. placental abruption\(^1,\ 2\), fetal distress\(^2\), disseminated intravascular coagulation\(^3\), and rarely anaphylactoid syndrome\(^3\).
## EQUIPMENT
- Sterile pelvic pack
- Intrauterine pressure catheter pack and 1 mL syringe
- Lubricating gel
- Cardiotocograph (CTG) monitor
- Adhesive tape, optional

## PROCEDURE

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Preparation</strong></td>
</tr>
<tr>
<td>1.1</td>
<td>Ensure there are no contra-indications to insertion of an IUPC.</td>
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<tr>
<td>1.2</td>
<td>Check the position of the placenta.</td>
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<td>1.3</td>
<td>Read the manufacturer’s instruction in or on the packaging of the IUPC regarding insertion.</td>
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<tr>
<td>1.4</td>
<td>Confirm the woman’s identity and obtain verbal consent.</td>
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<td>1.5</td>
<td>Position the woman in the dorsal position.</td>
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<tr>
<td>1.6</td>
<td>Plug the reusable interconnect cable into the pressure monitoring connector on the CTG monitor. Ensure the amnio port caps are firmly in place on the IUPC.</td>
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<tr>
<td>2</td>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td>2.1</td>
<td>Using an aseptic technique, remove the catheter from the package.</td>
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<tr>
<td>2.2</td>
<td>Zero the system if required according to the manufacturer’s instructions.</td>
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<td>2.3</td>
<td>Perform a vaginal examination to:</td>
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<tr>
<td></td>
<td>• ensure adequate cervical dilatation</td>
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<tr>
<td></td>
<td>• confirm rupture of the membranes</td>
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<tr>
<td>2.4</td>
<td>Insert the introducer and catheter into the vagina and to the cervical os. Do not advance the introducer through the cervix.</td>
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### ADDITIONAL INFORMATION
- The obstetric Consultant or Senior Registrar should assess the suitability for insertion of an IUPC. **The obstetric Consultant or Senior Registrar should assess the suitability for insertion of an IUPC.**
- Ensures there is no risk of uterine perforation. **Ensures there is no risk of uterine perforation.**
- Slight variations may occur with insertion instructions due to different manufacturer’s brands used by the hospital. **Slight variations may occur with insertion instructions due to different manufacturer’s brands used by the hospital.**
- Avoid aorto-caval compression by placing a wedge under the buttock or lower back. **Avoid aorto-caval compression by placing a wedge under the buttock or lower back.**
- Some brands zero the system prior to the procedure, while other brands may zero after the insertion of the catheter. **Some brands zero the system prior to the procedure, while other brands may zero after the insertion of the catheter.**
- The optimal position for IUPC placement can be determined by using the index finger to palpate the presenting part. **The optimal position for IUPC placement can be determined by using the index finger to palpate the presenting part.**
- Placement of the catheter in the amniotic space can be determined by visualising amniotic fluid in the opaque tubing of the catheter. **Placement of the catheter in the amniotic space can be determined by visualising amniotic fluid in the opaque tubing of the catheter.**
- Evidence of blood indicates extraovular placement of the catheter. **Evidence of blood indicates extraovular placement of the catheter.**
- Forced insertion may result in fetal or maternal injury, maternal discomfort, or malfunction. **Forced insertion may result in fetal or maternal injury, maternal discomfort, or malfunction.**

If resistance is met at any time during insertion:
- Pull the catheter tip back to the introducer and alter the direction of the catheter by changing direction of the introducer
- Determine an alternative position for placement and proceed
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| 2.5 Remove the introducer by gently sliding back out of the vagina according to the manufacturer’s instructions. | The catheter should be secured as close as possible to the introitus to prevent the catheter from working its way out of the uterus when it is flexed.  

2.6 Secure the catheter to the woman’s leg. |

2.7 Zero the CTG monitor if required according to instructions.  
Connect the catheter to the cable according to instructions. |

2.8 Instruct the woman to cough.  
A spike on the CTG tracing in response to a cough indicates correct positioning.  
When a change in resting tone is observed, the maternal position and manual palpation of the uterine tone should be documented. |

2.8 Document in the medical records noting:  
- time of insertion  
- baseline resting tone pressures in the semi-fowlers position, left and right lateral positions  
Document time of insertion on the CTG trace if not automatically done. |

3 Troubleshooting  
If the IUPC is not recording:  
- Ensure the catheter, cable and CTG monitor are compatible before insertion.  
- Check the cables are plugged in and all connections are correct.  
- Disconnect the catheter from the cable and inject 10mL of sterile 0.9 % sodium chloride through the amnioport.  
Reconnect the cap and cable.  
- Liaise with the medical officer who may decide to disconnect the catheter from the cable, rotate, retract or advance the catheter. Wait 15 seconds before reconnection. |

4 Removal  
Grasp the catheter and gently pull until fully withdrawn. Disconnect the catheter from the cable.  

5 Amniotic Sampling  
Remove the cap from the amnio port and collect the sample.  

6 Amnioinfusion  
See Clinical Guidelines, O&M, Intrapartum, Fetal Compromise (Acute): Management if Suspected: Amnioinfusion  

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Note: the cable is not discarded.
REFERENCES (STANDARDS)


National Standards – 1 Clinical Care is Guided by Current Best Practice
Legislation - Nil
Related Guidelines / Policies - KEMH Clinical Guidelines; Obstetrics & Midwifery:

- Complications of Pregnancy: BMI >40: Management of Women During Pregnancy and Birth
- Intrapartum Care: Fetal Heart Rate Monitoring: Intrapartum; Amnioinfusion

Other related documents – Nil

RESPONSIBILITY

Policy Sponsor Medical Director Obstetrics
Initial Endorsement July 2009
Last Reviewed September 2014
Last Amended February 2015
Review date March 2017

Do not keep printed versions of guidelines as currency of information cannot be guaranteed.
Access the current version from the WNHS website.