Intrauterine Pressure Catheter (IUPC) and Amnioinfusion

Self Learning Module

Southern Health–Santé Sud
L Cassan RN BN - Regional Obstetrical Education Facilitator
2016

OBJECTIVES

1) You will be able to determine when an intrauterine pressure catheter would be beneficial
2) You will be able to determine when amnioinfusion would be beneficial
3) You will be able to list the risks/complications to the procedure
4) You will be able to assist with the insertion of an intrauterine pressure catheter
5) You will be able to trouble shoot when an intrauterine pressure catheter is not working correctly
6) You will be able to set up and monitor an amnioinfusion

DEFINITIONS

Amnioinfusion – An infusion of warmed fluid into the uterine cavity, generally used to help alleviate repetitive variable decelerations

IUPC – Intrauterine Pressure catheter - accurately measures the strength, length and timing of maternal contractions

MVU – Montevideo units – a measure of pressure in the uterine cavity

ROM – rupture of membranes

INTRODUCTION

An intrauterine pressure catheter is used to accurately measure the intrauterine resting tone and the intensity, duration and frequency of contractions. It is placed in the uterine cavity and transmits pressure changes to the monitor. An IUPC can also be used to infuse warmed fluid into the uterine cavity. It has many advantages such as a more accurate measurement of uterine contractions and a more accurate relationship between contractions and FHR patterns (More^{OB}). It may be used to determine labour dystocia and is helpful in obese women who are otherwise hard to monitor. An IUPC can also allow more freedom than external monitoring. Disadvantages included the invasiveness and the risks of the procedure.

INDICATIONS

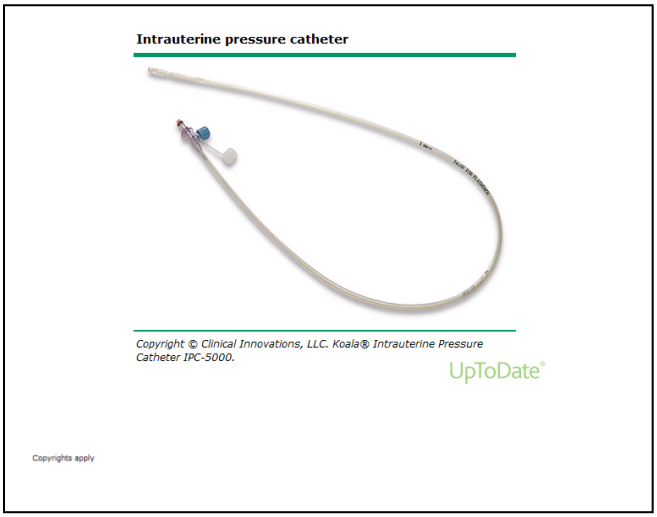
- When external methods are not providing a clear tracing
- To determine the exact timing of FHR decelerations in relation to contractions (i.e. early vs late)
- To determine Montevideo units in case of a labour dystocia
- To determine if contraction's are adequate in augmentations/inductions
- When oxytocin above 30 mU/min is required
- When augmenting/inducing a woman with a prior C/S scar (MoreOB)
- When amnioinfusion is required to treat variable decelerations

REQUIREMENTS

- Ruptured membranes
- Cervical dilation of at least 2- 3 cms
- Knowledge of presenting part
- Physician trained in insertion, nursing staff trained in monitoring

CONTRAINDICATIONS

- Placenta previa – suspected or confirmed
- Undiagnosed vaginal bleeding
- Chorioamnionitis – relative contraindication
- Malpresentation



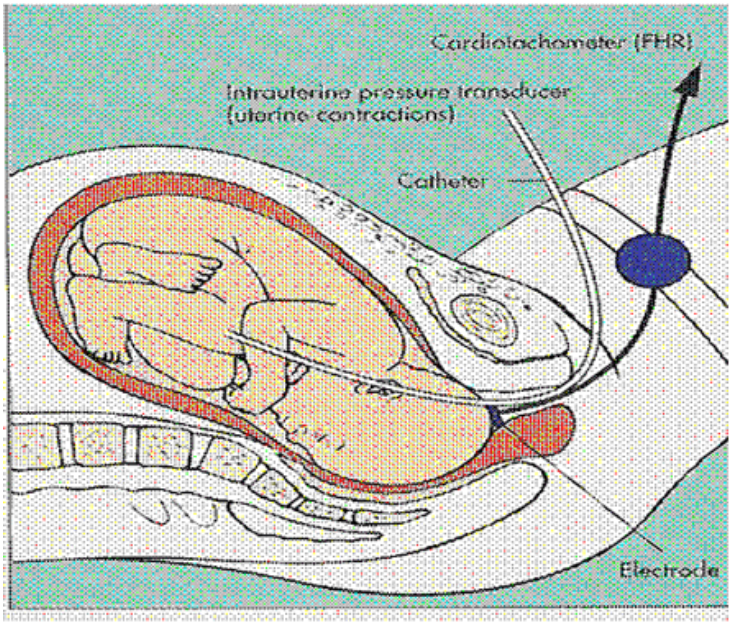
EQUIPMENT

- One use, sterile catheter
- Appropriate cable/connector
- Fetal monitor
- Securing device
- Sterile gloves
- Warmed Fluid (if amnioinfusion to be used)
- IV infusion set for amnioinfusion

INSERTION of IUPC

- Non – forceful, intraamniotic
- Sterile procedure
- MD to perform PV to confirm dilation/ROM/presenting part and optimal positioning of the catheter
- Placement should be laterally and away from the placenta
- U/S not used to guide placement
- Turn on fetal monitor
- Patient should be supine with a tilt
- May need to provide the MD with an amniotic hook if membranes are not ruptured
- Remove catheter from packaging using aseptic technique
- *Ensure amnioport is vented by confirming filtered vented cap is in place on anmioport*
- The catheter is inserted gently 10 -14 cm into the amniotic cavity
- The tip should end up just beyond the fetal head
- Flow of amniotic fluid through the catheter indicates appropriate placement (should be at the first line on the catheter)
- Flow of blood indicates incorrect placement – may be extramembraneous, placental or in the umbilical cord. The catheter may be left insitu in certain situations – immediate fetal/maternal well being needs to be checked

- Once amniotic fluid is seen, the catheter is advanced another 45 cms, to the second mark on the catheter
- Introducer is removed
- Secure the IUPC to the patients thigh with an appropriate securing device
- Connect the catheter to the monitor cable. *NOTE: When the catheter is zeroed depends on the manufacturer. Some will be zeroed prior to connection, some after connection to the monitor – use the button to zero as you do for the toco*
- Have the patient cough – should see a spike in pressure
- Baseline tone is between 7 – 25 mmHG (with a term pregnancy)
- PCP to order a range of MVU (i.e. increase oxytocin as per protocol until contractions between 250 – 300 MVU'S)



From: medical-lecture-notes-ppt.blogspot.com

DOCUMENTATION:

- Document in the integrated progress notes:
  - Time of insertion
  - Presence of amniotic fluid return, frank blood return or lack of return upon insertion
  - Patient tolerance of the procedure
  - Resting tone
  - Confirmation of cough spike
  - FHR post insertion

TROUBLE SHOOTING:

If IUPC not working:

- Disconnect catheter from the cable
- MD to flush 10 – 20 mLs NS through amnioport
- Reconnect

OR

- Disconnect Catheter from the cable
- MD to rotate, retract or advance as needed
- Wait 15 secs then reconnect

COMPLICATIONS:

- Complications once correct placement has been accomplished are rare
- Most complications come from improper placement (extramembraneous placement can rarely lead to placental abruption, laceration of the placenta or uterine perforation)
- Blood in the catheter may indicate fetal or placental trauma
- Uterine perforation – abdominal pain, S&S of bleeding, may have a dry or bloody insertion. Valsalva maneuver by the patient in the absence of a contraction may cause a spike in pressure if this has occurred
- Umbilical cord prolapse – if the head is not well applied or moved out of the way during insertion
- Infection – 2x increase risk of maternal fever

PREVENTION OF COMPLICATIONS:

- Maintaining sterile technique
- Gentle application (DO NOT use force)
- Stopping if resistance is felt
- Do not advance the introducer beyond the examiners fingers (just inside the cervix, prior to the fetal head)
- Insert away from the placental site

MONITORING

- Monitor contraction pattern and resting tone
- Calculate MVU's by adding together the amplitudes of all contractions in a 10 minute window
  Amplitude = peak of the contractions – resting tone
- MVU's are generally wanted in the 200 – 300 range for inductions/augmentations or 50 – 60 mmHG above baseline (The PCP to order the range they want).
- MVU's in normal labour are usually less than 250 MVU or 25-75 mmHg above baseline (except in second stage)

AMNIOINFUSION

- May be given by gravity or pump
- Rapid administration is to be avoided
- FHR needs to be continuously monitored as well as resting tone/contraction pattern
- A Cochrane review found Amnioinfusion reduced the rates of C/S, FHR decelerations, PP endometritis and maternal hospital stays greater than 3 days. Mean Cord pH was higher with the amnioinfusion group.

COMPLICATIONS OF AMNIOINFUSION

- Rare
- Amniotic fluid emboli has been reported but not definitively linked to the amnioinfusion
- Polyhydramnios may cause elevated uterine pressure and fetal bradycardia
- Used with caution in chorioamnionitis as it may wash out the bacteriostatic amniotic fluid and cause a greater infection

WHEN TO DISCONTINUE.....

- Babies can be born with the IUPC in place
- When the IUPC is removed will depend on the reason for the placement:
  - If placed for contraction strength, the IUPC can be removed during the pushing stage once the baby is close to delivery (within 20 minutes estimated) or when the baby is trying to 'get around the corner'
  - If placed for FHR abnormalities, the IUPC may be removed after delivery

THINGS TO CONSIDER PRIOR TO REMOVAL.....

- Will you still be able to monitor the contractions? (Palpation or External toco)
- Are you comfortable with the FHR? If late decels are occurring it might be prudent to leave it in as long as you can
- Does the pelvis seem to have lots of room? If it seems a tight fit, the IUPC may be removed and external monitoring commenced with active 2nd stage

Bibliography

IUPC. Slideshare. Accessed on Jan 23rd, 2015 from http://www.slideshare.net/wcmc/iupc.

More OB – Taking Care of life. Management of labour & Fetal health Surveillance in labour. Accessed on April 28, 2015 from www.moreob.com.

Pauli, J., Repke, J. (2014, March 19). Insertion of intrauterine pressure catheters. Up to Date. Accessed on Jan 23rd, 1025 from http://www.uptodate.com/contents/insertion-of-intrauterine-pressure-catheters.

Roque, H., Gillen-Goldsrein,J., Funai, E. (2104, Sept 30). Anmioinfusion – Technique. Up to date. Accessed on Jan 23, 2015 from http://www.uptodate.com/contents/amnioinfusion-technique