SYNTOCINON INTRAVENOUS INFUSION FOR INDUCTION OR AUGMENTATION OF LABOUR

SCOPE:
All midwives who have successfully completed the syntocinon workbook and have up to date intravenous (IV) certification for IV medications. LMC’s are responsible for informing the facility whether they have the appropriate clinical competency, as per Section 88 for management of women requiring induction or augmentation.

AUTHOR:
Midwifery Educator

PURPOSE:
The purpose of this protocol is to guide practitioners to safely administer and manage intrapartum syntocinon in order to facilitate safe vaginal delivery for both the woman and her baby.

DEFINITIONS:
Syntocinon is a synthetic form of oxytocin.

STORAGE:
In a refrigerator (2-8 degrees C). Syntocinon may be stored at 30°C for 3 months. After this time it must be discarded and not returned to the refrigerator

GUIDELINE
When syntocinon is used by IV infusion for the induction or augmentation of labour, its administration at excessive doses may result in uterine overstimulation which may cause fetal distress, asphyxia and death, or may lead to hypertonicity, tetanic contractions or rupture of the uterus. Therefore the minimum effective dose should be used. Continuous EFM is required prior to and during any syntocinon infusion use to observe for fetal well being before and during this intervention.

NB: Syntocinon infusion should not be commenced until there is a minimum time lapse of six hours post prostaglandin gel insertion and at least 30 minutes following removal of a cervidil pessary. If no prostaglandins have been used then syntocinon infusion can commence as prescribed.
Pre-requisites

a) In ALL CIRCUMSTANCES the decision to use Syntocinon is made in consultation with the obstetrician on call, the woman, her LMC and the core midwife. The obstetrician will be responsible for the prescribing and direction of the syntocinon infusion.

b) The responsibility for midwifery care will be negotiated with the obstetrician, the LMC, the woman and the core midwife. The LMC may continue to provide midwifery care but if care is handed over to core staff then it is strongly recommended for clarity and safety reasons that the LMC does not remain as a support person to the woman and her family/whanau. If care passes from LMC to core or vice versa this should be clearly documented in the woman’s MCIS records and the women informed and the SBAR used.

c) A minimum of 18-gauge IV cannula must be inserted. Blood must be sent to the laboratory for CBC and Group and Screen and any other tests clinically indicated.

d) The Syntocinon Infusion is administered via an electronic control device (i.e. Baxters pump) and must be piggybacked into a mainline of either one litre of Plasma-Lyte or Normal Saline.

e) Usually the membranes would be ruptured, unless the obstetrician has documented a management plan for the syntocinon infusion/regime with intact membranes.

f) The possibility of cephalo-pelvic disproportion must always be considered

g) Any deviations from this guideline must be discussed with the obstetrician and documented in the clinical notes.

Contraindications to syntocinon include:

- Contracted pelvis
- Malpresentation
- Classical C/S scar
- Obstructed labour
- Hypertonic uterine action
- Placenta Praevia/vasa praevia
- Hypersensitivity to oxytocin
- Fetal distress when delivery not imminent
- Placental abruption
- Cord presentation or prolapse

Use with Caution:

- Multiparity
- Grandmultiparity
- Previous C/S, especially with epidural
- Non – Reassuring fetal heart or Electronic Fetal Monitoring (EFM)
- Maternal cardiac condition
• Mild/moderate Pregnancy Induced Hypertension (PIH) – be aware of potential for fluid overload
• Severe pre-eclampsia
• Polyhydramnios

Potential adverse effects
• Headache
• Tachycardia, bradycardia
• Nausea, vomiting
• Anaphylactic reaction associated with dyspnoea, hypotension or shock (rare)
• Rash (rare)
• Arrhythmia (uncommon)
• Uterine overstimulation - Hypertonicity, tetanic contractions or uterine rupture
• Fetal distress, asphyxia and death
• High doses of oxytocin with large amounts of electrolyte-free fluid over a prolonged period of time – water intoxication associated with maternal and neonatal hyponatraemia
• Fluid overload leading to a haemodynamic form of acute pulmonary oedema without hyponatraemia
• Rapid bolus IV may result in acute and short lasting hypotension accompanied by flushing and reflex tachycardia
• Rarely (<0.0006) increases the risk of postpartum DIC

Compatible with:
• 0.9% Normal Saline
• Plasma-Lyte Solution

Incompatible with:
• Do not mix with any other medication or blood products

Procedure - Infusion and Infusion Rate
Infusion
*Syntocinon 10 IU in 500mls 0.9% Normal Saline. This will give a concentration of 20 mIU (milliunits) per ml. Which means 3mls/hr = 1mIU/min of syntocinon.*
Administer via a Baxter’s pump.

The rate will depend on individual need and is directed by uterine activity and fetal well being. Women who are multiparous will usually respond more readily to the medication than nulliparous women.
The **minimum effective dose** should be used. The aim is to achieve a maximum of 3-4 contractions every 10 minutes with a 60-90 second resting period between each contraction. **Once reached, it is no longer necessary to continue increasing the rate of infusion.**

A starting dose of 1-2mIU/minute should be used, increasing at intervals of 30 minutes.

Adequate contractions may be established at small doses. **Please note** it is not usually necessary to go to the maximum dose to achieve this.

**NB: Notify the obstetrician if ANY concern re CTG, or lack of progress after 4 hours of effective contractions.** If the midwife believes that for any reason the dose should be decreased or not be increased at the routine interval due to clinical concerns with the mother or the baby, inform the obstetrician.

**Recommended dose regimes:**

**A/ Routine augmentation or induction of labour:**
- Commence the syntocinon infusion at 2 mIU/min = 6mls/hour, and increase by 2mIU/min every 30 minutes
- **Remember a safe response with adequate contractions** will lead to cervical dilatation without fetal or maternal distress.
- **Maximum dose is 20 mIU/min (60mls/hr) unless otherwise prescribed by the obstetrician**

**B/ Low dose regime e.g. Para 4+ or previous C/S**
- Commence the syntocinon infusion at 1mIU/min and increase by 1mIU/min every 30 minutes.
- **Maximum dose is 10mIU/min (30mls/hr) unless otherwise prescribed by obstetrician.**

**Adjust regime to individual response.**

**C/ High concentration regime**
In some cases the concentration of intrapartum syntocinon for induction of labour/augmentation of labour may need to be increased to avoid fluid overload or in cases where fluid restriction is necessary. The high concentration syntocinon infusion may only be authorised by the on-call obstetrician.
Infusion:
- **SYNTOCINON 20 IU are added to 500mls of 0.9% Normal Saline which gives a concentration of 40 mIU/ml. 3mls/hr = 2mIU/min**

Infusion Rate:
If using the high-dose Syntocinon in cases of **extreme fluid restriction**:
- Commence infusion at **2mIU/min = 3ml/hr** and increase every 30 minutes by **2mIU/min**, or as directed by the obstetrician.
- Maximum dose is **20mIU/min = 30mls/hour**

**D/ Syntocinon in the Second Stage of Labour**
Consideration should be given to the use of syntocinon, with the offer of regional analgesia, for nulliparous women if contractions are inadequate at the onset of the second stage. Consult with the on call O&G.

**Maternal and fetal monitoring**
When commencing and increasing the syntocinon infusion the midwife must remain with the woman and continuously monitor the fetal and maternal wellbeing.

While on the Syntocinon infusion the following observations are required:

- In addition to usual recordings required for the labour and completion of a partogram, record the doses of syntocinon on the CTG trace.
- Continuous electronic fetal monitoring (EFM). If abnormal, stop the infusion, call the O&G and implement corrective measures e.g. change in maternal position, reposition transducers, IV fluid bolus.
- Encourage 2 hourly emptying of bladder
- A fluid balance record should be commenced and restrict oral intake to clear fluids or energy drinks only while on Syntocinon infusion.

Syntocinon may cause water intoxication associated with hyponatremia. The combined antidiuretic effect of oxytocin and the IV fluid administration may cause fluid overload leading to a haemodynamic form of acute pulmonary oedema without hyponatremia.

Whenever high doses of oxytocin are administered over a long period of time, the volume of infused fluids should be kept low (by infusing oxytocin at a higher concentration than recommended for the induction or augmentation of labour at term). See the high concentration regime. Fluid intake by mouth may need to be restricted. A fluid balance chart should be kept and serum electrolytes levels may be required when electrolyte imbalance is suspected.
If signs or symptoms of overdose occur during continuous IV administration of Syntocinon, the infusion must be discontinued at once and oxygen should be given to the mother. In the event of water intoxication, it is essential to restrict fluid intake, promote diuresis, correct electrolyte imbalance, and control possible convulsions by judicious use of diazepam. The on call O&G should be consulted.

If the woman has had a syntocinon infusion during labour, active management of the third stage must be recommended to the woman as per NZCOM consensus statement.

Post birth
Remember to administer an ecbolic after the baby has been born e.g. syntocinon 10 IU IM is the recommended ecbolic alternatively 5IU can be administered IV if directed by the O&G. One ampoule of Syntometrine can be administered IM (but only if the BP has been recorded and is normal).

Once the second and third stages of labour have been completed, the 10 IU Syntocinon infusion should be increased to a rate of 100ml/hr and remain running for at least one-hour post delivery, or as ordered by the obstetrician.

If at one hour post birth, the uterus is well contracted and lochia within normal range, the infusion can be discontinued. It may be advisable to leave the luer in place for a couple of hours for easy access if needed.

If the lochia is continuing to trickle or remains heavy or the uterus is not well contracted or “boggy”, inform the on call O&G, change and commence the syntocinon infusion as for PPH Syntocinon Regime (40 IU syntocinon in 500mls of normal saline @ 125mls/hour via a Baxters pump). Inform the obstetrician and follow the national PPH guideline.

Lactation
Oxytocin may be found in small quantities in mother's breast milk. However, oxytocin is not expected to cause harmful effects in the newborn because it passes into the alimentary tract where it undergoes rapid inactivation.

ASSOCIATED DOCUMENTS
Maternity guideline - Induction of labour
Maternity guideline – Management of postpartum haemorrhage
Appendix 1 – Syntocinon regime
REFERENCES

Consensus Statement: Facilitating the Birth of the Placenta (2013) New Zealand College of Midwives


MOH. 2012. Guidelines for Consultation with Obstetric and related medical Services (referral guidelines). Wellington. MOH.

Date of Approval: 14/11/2016

Next Review Date: 14/11/2019
Appendix 1
SYNTOCINON REGIME - The following are recommended doses which may be altered at the discretion of the obstetrician in individual case management.

1/ Routine augmentation or IOL - Syntocinon 10IU in 500mls of Normal Saline - increase rate every 30 minutes, if a good response increase with smaller doses

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<th>Dose (mIU/minute)</th>
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2/ Low dose for PARA 4+ OR PREVIOUS C/S - Syntocinon 10IU in 500mls of Normal Saline. Increase rate every 30 minutes, if a good response increase with smaller doses

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3/ High concentration for fluid restriction - Syntocinon 20IU in 500mls of Normal Saline. Increase rate every 30 minutes, if a good response increase with smaller doses

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• The minimum effective dosage should be used aiming for a **maximum of 3 – 4 contractions every 10 minutes** with a 60-90 second resting period between each contraction.

• Adequate contractions may be established at small doses. Please note it is not necessary to go the maximum dose to achieve this. However, **if the syntocinon is not increased half hourly as per regime, or is stopped for any reason, the obstetrician must be notified.**

• Continuous CTG monitoring must be in place when using syntocinon

• Remember a safe response with adequate contractions will lead to cervical dilatation without fetal or maternal distress.

• If regular contractions and cervical changes have not been achieved after a **total of 4 hours**, then further consultation with the O & G is required.

• Prior to commencing, a minimum of an 18 gauge cannula should be in place and bloods sent for CBC and group and save and any other test clinically indicated.

• Administer via an electronic pump, piggy backed into a mainline of either Plasma-Lyte or Normal Saline.

• If membranes are ruptured while on the infusion, consider reducing the amount of syntocinon as there may be increased natural oxytocin produced following membrane rupture.

• At least 6 hours should elapse following prostaglandin gel insertion before commencing syntocinon infusion.

• At least 30 minutes should elapse following cervidil removal before commencing syntocinon infusion.

**Date:**
**Signed:**

**HOD Director Obstetrics**