University Hospitals Sussex
NHS Foundation Trust

Delay in Labour and use of Oxytocin

Maternity Protocol: MP041

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Contents

Key principles

A protocol is a set of measurable, objective standards to determine a course of action. Professional judgement may be used in the application of a protocol.

Scope

This protocol applies to:
Any pregnant women and people with delay in labour potentially requiring Oxytocin

Guideline will cover

- Recognition of delay in labour
- Assessment prior to commencement of oxytocin
- Monitoring arrangements for the woman and fetus necessary for augmentation
- The documentation and the management of care planning necessary when augmenting labour
- When Oxytocin infusion should be reduced / stopped

Responsibilities:

Midwives & Obstetricians:

To access, read, understand and follow this guidance
To use their professional judgement in application of this protocol

Management

- To ensure the protocol is reviewed as required in line with Trust and National recommendations
- To ensure the protocol is accessible to all relevant staff
- To ensure the protocol is available to service users on request

1 Delay in Labour and use of Oxytocin

1.1 Diagnosis of Delay in First Stage

Please see *Maternity Protocol* MP035: Care of Women and People in Labour for details on identifying delay in labour

1.2 Inform pregnant women and people that while the length of established first stage of labour varies between women and people:

- First labours last on average 8 hours and are unlikely to last over 18 hours
- Second and subsequent labours last on average 5 hours and are unlikely to last over 12 hours **(NICE 2007)**

1.3 A diagnosis of delay in the active 1st stage of labour needs to consider all aspects of progress in labour and should include the following:

- Cervical dilatation of less than 2 cm in 4 hrs for first labours
- Cervical dilatation of less than 2 cm in 4 hrs or a slowing in the progress of labour for second or subsequent labours
- Lack of decent and rotation of the fetal head.

Changes in strength, duration and frequency of uterine contractions **(NICE 2007)**
For all pregnant women and people with confirmed delay in the established first stage of labour:

1.1.1 Transfer the woman or person to obstetric-led care for an obstetric review and a decision about management options, including the use of oxytocin (follow the general principles for transfer of care described in section 1.6) **(NICE 2014)**

1.1.2 Explain to them that using oxytocin after spontaneous or artificial rupture of the membranes will bring forward the time of birth but will not influence the mode of birth or other outcomes**(NICE 2007)**

1.2 Care & Management

Pregnant women and people should be offered support, hydration and appropriate pain relief (this can include non-pharmacological and pharmacological pain relief).

1.2.1 **Abdominal palpation and VE's**

Should be *offered* 2-4 hourly, in labouring pregnant women and people in whom progress is, or is anticipated to be, slow

If delay in the established first stage of labour is suspected, amniotomy should be considered for all pregnant women and people with intact membranes

1.2.2 **Amniotomy**

- Should be advised for 1st stage delay and with documented maternal or parental informed consent
- Amniotomy should only be carried out after full maternal or parental and fetal assessment including abdominal palpation and estimation of fetal head engagement and excluding cord presentation on vaginal examination
- An abdominal palpation and vaginal examination should be offered 2 hours after amniotomy
- If the pregnant woman and person declines amniotomy, VE should be advised 2 hours later, and if progress is less than 1cm a diagnosis of delay should be made

1.2.3 **Information / consent**

- Explain that the use of oxytocin after spontaneous or artificial rupture of the membranes will bring forward the time of birth but will not influence the mode of birth or other outcomes **(NICE 2007)**
    - Explanation should be made about the procedure and advice given
    - Inform the woman or person that oxytocin will increase the frequency and strength of their contractions and that its use will mean that their baby should be monitored continuously (except for toilet breaks)
    - Women and people should be informed that oxytocin may increase the pain from contractions and appropriate pain relief should be offered
    - Offer the woman or person an epidural before oxytocin is started **(NICE 2007)**

When delay in the established first stage of labour is confirmed, the pregnant woman or person should be referred to the Obstetric Registrar for review and subsequent plan

1.4 Assessment of pregnant women and people prior to commencing oxytocin

An assessment should be undertaken prior to the commencement of oxytocin:

1.4.1 Assessment of frequency and strength of contractions, abdominal palpation and vaginal loss

1.4.2 Pregnant women and people requiring oxytocin should be seen by an obstetrician who should perform a full assessment before making a decision on the use of oxytocin:

- Review of individual clinical situation including fetal wellbeing abdominal palpation
- VE
- Discussion with pregnant woman or person to agree a plan of care

- Discussion about pain relief in labour including risks, benefits and timing of epidural

1.4.3 All observations, discussions and decisions should be documented clearly in the maternal or parental notes and the oxytocin template should be filled out by the obstetrician and midwife caring for the woman or person

2 Midwifery Care and Use of Oxytocin

Pregnant women and people on oxytocin infusions require one to one care at all times

2.1 Contra indications for use of oxytocin

2.1.1 Uterine hyperstimulation
2.1.2 Suspected obstructed labour
2.1.3 Abnormal CTG
2.1.4 Within 6 hours of prostaglandin administration
2.1.5 Woman or person declines or removes consent

2.2 Middle grade/Consultant review

When oxytocin is to be used the labouring woman or person must first be reviewed (see above) by the middle grade doctor or consultant obstetrician who Will prescribe on drug chart and complete relevant section within notes.

2.3 Reducing/stopping the oxytocin infusion

2.3.1 **When to reduce the infusion rate:**
NICE[1] recommends oxytocin should be reduced if contractions occur more frequently than 4 in 10 minutes

2.3.2 **When oxytocin should be stopped:**

- If continuous electronic monitoring cannot be provided or is declined by the woman or person
- If the CTG is classified as abnormal and the obstetric middle grade/consultant is not immediately available
- Malpresentation e.g. breech, arm
- Intrapartum haemorrhage
- Suspicion of uterine rupture
- Signs of obstructed labour
- Cord prolapse
- If a decision for Caesarean section has been made

The time of discontinuation / reduction in oxytocin infusion should be documented in the intrapartum notes and on the partogram

2.4 Management of hyperstimulation

2.4.1 Hyperstimulation is uterine over activity defined as contraction frequency ≥6 in 10 minutes for at least 20 minutes (tachysystole) or

uterine hypersystole/hypertonicity (contraction exceeding 2 minutes in duration). These may or may not be associated with CTG changes. **(NICE Clinical Guideline: Induction of labour, July 2008).** If not corrected, hyperstimulation can lead to fetal hypoxia and even uterine rupture.

2.4.2 If the CTG s normal, oxytocin may be continued until the woman or person is experiencing 3-4 contractions every 10 minutes. Oxytocin should be reduced if contractions occur more frequently than 4 in 10 minutes

2.4.3 If the CTG is abnormal, oxytocin should be stopped and a full assessment of fetal condition undertaken by an obstetrician

2.5 Actions to consider if CTG is non-reassuring or abnormal

2.5.1 General measures (turn patient to left lateral position/start IV fluids)

2.5.2 Reduce oxytocin unless prolonged contractions singularly define hyperstimulation. Reduce oxytocin to the previous dose level if contractions are more frequent than 4 contractions in 10 minutes. Reduce to previous dose again every 15 minutes if the problem persists

2.5.3 Stop oxytocin if CTG abnormalities. A full assessment of the fetal condition undertaken by an obstetrician before oxytocin is recommenced **(NICE 2014)**. The infusion should be recommenced at 4 milliunits/min (1.2 millilitres/hr), or half or less of the pre-stoppage dose.

2.5.4 If non-reassuring or abnormal CTG as a result of hyperstimulation, consider tocolysis (subcutaneous terbutaline 0.25 mg)

2.5.5 Consider FBS if CTG abnormalities or prepare for possible delivery (see MP038 Fetal Blood Sampling)

Hyperstimlation	General measures	Spontaneous labour (no drugs)	Prostin/Propess	Oxytocin
Normal CTG	√	Observe CTG	Observe CTG	Reduce Oxytocin by half
Non-reassuring CTG	√	Consider tocolysis	Remove propess; consider tocolysis	Stop oxytocin, consider tocolysis
Abnormal CTG	√	Carefully assess clinical situation; urgently consider tocolysis, FBS or delivery	Remove propess; urgently consider tocolysis	Stop Oxytocin, urgently consider tocolysis

2.6 If previous Caesarean section the threshold for intervention should be lower and a doctor's assessment should be carried out urgently because of the increased risk of uterine rupture.

3 Oxytocin Regime - First Stage Labour

Dose schedules including frequency of increment

3.1 Label additive and secure to the bag prior to commencing infusion

3.2 Commence IV with 10 units of oxytocin in 50 millilitres of 0.9% sodium Chloride

3.3 Infusion must be run through an infusion pump (Alaris or Baxter)

3.4 Start oxytocin infusion at **1 milliunits/min** (0.3 millilitres/hr)

3.5 Increase every **30** minutes to a maximum of **32 milliunits/min (9.6 millilitres/hr)** to achieve 3 to 4 uterine contractions every 10 minutes (see table below). If the woman and birthing person has contractions more frequently than 4 in 10 minutes, reduce or stop the oxytocin until the woman or birthing person is having 4 or fewer contractions in 10 minutes.

3.6 The time between increments of the dose should be no more frequent than every 30 minutes

3.7 Monitor uterine contractions on CTG and by palpation

3.8 Document commencement, dosages and increments rises in the maternal BadgerNet record and on the CTG tracing

FIRST STAGE OF LABOUR	Oxytocin	
Time after starting (mins)	**dose (milliunits/min)**	**pump rate (millilitres/hr)**
0	1	0.3
30	2	0.6
60	4	1.2
90	8	2.4
120	12	3.6
150	16	4.8
180	20	6.0
210	24	7.2
240	28	8.4

	270	32	9.6
NB	Oxytocin augmentation should not continue for longer than six hours with inadequate progress unless the case has been discussed with the Consultant on call If oxytocin is used for induction of labour and regular contractions are not established after 6 hours, then induction should be stopped and discussed with the obstetrician (RCOG Evidence based guideline number 9) If increase needed above 20 milliunits/min (6.0 millilitres/hour), this should be discussed with the available registrar or consultant as rates over this are contraindicated in the BNF and will be an off-label use.		

4 Management of pregnant women and people on Oxytocin (First Stage)

Water intoxication and electrolyte imbalance

4.1 As oxytocin has anti-diuretic properties, prolonged use at high dosage with high volumes of non-electrolyte containing fluids can result in hyponatraemia with water intoxication which present as occasional epileptiform fits and rarely pontine myelinolysis. Patients should hence, be monitored for symptoms of headache and drowsiness. MP064 Hyponatraemia

4.2 Monitoring arrangements – Mother or Birthing Parent

4.2.1 An individual management plan should be clearly documented in the notes by the reviewing obstetrician before oxytocin is commenced

4.2.2 Recommend abdominal palpation and vaginal examination after 4 hours of regular uterine contractions (4 in 10) following commencement of oxytocin and 2-4 hourly thereafter, in discussion with middle grade Obstetrician. All observations and vaginal examinations can be undertaken by the midwife providing care unless otherwise documented in the plan of care

- If there is less than 2cm progress after 4 hours of oxytocin, further obstetric review is required to consider caesarean section
- If there is 2 cm or more progress, vaginal examinations should be advised 4 hourly

4.2.3 Routine maternal or parental labour observations (Please see *Maternity Protocol* MP035: Care of Women in Labour)

4.2.4 Maternal or parental fluid balance monitoring as oxytocin is an antidiuretic, documented on fluid balance chart

4.2.5 Omeprazole 20mg should be given orally prior to commencing the Oxytocin

4.2.6 When augmenting labour in a woman or person with a previous caesarean section the case must be discussed with the middle grade or Consultant Obstetrician on call. (Please see *Maternity Protocol* MP034: Vaginal Birth After Caesarean Section (VBAC)

4.3 Monitoring arrangements – Fetus:

4.3.1 Pregnant women and people must have continuous electronic monitoring of fetal heart rate (CTG) and uterine activity (through abdominal palpation assessment by the clinician and observations/communication with the mother)

4.3.2 Any concerns about fetal wellbeing during labour requires an obstetric review

4.4 Documentation

Full contemporaneous documentation must be included in the notes including:

4.4.1 Documentation of the assessment prior to commencement of oxytocin,
4.3.1 Dose schedules and frequency of increment as per protocol
4.3.2 Documentation of an individualised management plan
4.3.3 Documentation of monitoring arrangement for woman or person and fetus and any observations
4.3.4 Documentation of times and reasons why oxytocin infusion is reduced or stopped

5 Identified Delay in Second Stage

For definition of delay in the second stage please see *Maternity Protocol* MP035: Care of Women and People in Labour

5.1 For suspected delay in Second Stage:

- Consider emptying the bladder
- Commence electronic fetal monitoring

5.1.1 For a nulliparous woman or person:
birth would be expected to take place within 3 hours of the start of the active second stage in most women or people diagnose delay in the active second stage when it has lasted 2 hours and refer the woman or

person to a healthcare professional trained to undertake an operative vaginal birth if birth is not imminent **(NICE 2007)**

5.1.2 For a multiparous woman or person:
Birth would be expected to take place within 2 hours of the start of the active second stage in most women and people diagnose delay in the active second stage when it has lasted 1 hour and refer the woman or person to a healthcare professional trained to undertake an operative vaginal birth if birth is not imminent. **(NICE 2007)**

5.1.3 For a nulliparous woman or person, *suspect* delay if progress (in terms of rotation and/or descent of the presenting part) is inadequate after 1 hour of active second stage. Offer vaginal examination and then offer amniotomy if the membranes are intact **(2007, amended 2014)**

5.1.4 For a multiparous woman or person, *suspect* delay if progress (in terms of rotation and/or descent of the presenting part) is inadequate after 30 minutes of active second stage. Offer vaginal examination and then offer amniotomy if the membranes are intact **(2014)**

5.1.5 If full dilation of the cervix has been confirmed in a woman or person without region al anaesthesia, but she does not get the urge to push, carry out further assessment after 1 hour **(NICE 2014)**

Lack of continuing progress in second stage of labour with adequate contractions can be *defined* as follows:

	Primip (no epidural)	**Primip (with epidural)**	**Multip (with or without epidural)**
Passive	1 hour	1-2 hours	1 hour
Active	2 hours	2 hours	1 hour

5.1.6 After diagnosis of full dilatation in a woman or person with regional anaesthesia, agree a plan with the woman or person in order to ensure that birth will have occurred within 4 hours regardless of parity **(NICE 2007)**

5.2 Management: All pregnant women and people

5.2.1 In the absence of descent after one hour of ACTIVE pushing, a referral to the obstetric registrar should be considered for a review and plans for Obstetric team referral is indicated if delivery not imminent:

5.2.1.1 After 2 hours of active pushing for primiparous women and people

5.2.1.2 After 1 hour of active pushing for multiparous women and people

5.2.2 Consideration should be given to the use of oxytocin, with the offer of regional analgesia, for nulliparous pregnant women and people if contractions are ***in***adequate at the *onset of the second stage.* **(NICE 2007)**

5.2.3 Contraindications to use of oxytocin in Second stage of labour,

5.2.3.1 Absolute contraindications

- Possible obstructed labour
- Significant feto-pelvic disproportion (e.g. large fetal head or body, suspected pelvic contraction after pelvic fracture etc.)
- Malpresentation (e.g. brow, mento-posterior face, transverse lie, oblique lie)

5.2.3.2 Relative contraindications

- Scar on uterus (e.g. previous caesarean section) must be a Consultant decision
- Known or suspected potential for feto-placental insufficiency

5.2.3.3 Information / consent

- Explanation should be made about the procedure and advice given
- Inform the woman or person that oxytocin will increase the frequency and strength of their contractions and that its use will mean that their baby should be monitored continuously (except for toilet breaks)
- Women and people should be informed that oxytocin may increase the pain from contractions and appropriate pain relief should be offered
- Offer the woman or person an epidural before oxytocin is started **(NICE 2007)**

5.2.4 Oxytocin should only be started after a full clinical examination (see above)

5.2.5 Pregnant women and people with confirmed delay in the active second stage should be assessed by an obstetrician. Decision to start 2nd stage Oxytocin should be made by a Consultant or ST6-7 ideally with consultant input

5.2.6 Omeprazole 20mg should be given orally prior to commencing the Oxytocin

5.2.7 After initial obstetric assessment of a pregnant woman or person with delay in second stage, maintain ongoing obstetric review every 15 to 30 minutes **(NICE 2007)**

6 Oxytocin Regime for Second Stage

Dose schedules including frequency of increment.

6.1 Augmentation in the second stage of labour uses 10 units of oxytocin in 50 millilitres of 0.9% sodium Chloride

6.2 The infusion must be put through a syringe driver that has been primed with the oxytocin infusion and purge the cannula to ensure that the medication starts to be administered immediately

6.3 If starting oxytocin (Syntocinon) in the second stage, the infusion rate can start at 4 milliunits/min (1.2 millilitres per hour) and increased **no more frequently than every 30 minutes**. **(NICE 2023)**

6.4 Augmentation should aim for contractions of 3-4:10 and not be increased above the infusion which achieves this. If the woman and birthing person has contractions more frequently than 4 in 10 minutes, reduce or stop the oxytocin until the woman or birthing person is having 4 or fewer contractions in 10 minutes.

SECOND STAGE OF LABOUR	Oxytocin	
Time after starting (mins)	**dose (milliunits/min)**	**pump rate (millilitres/hr)**
0	4	1.2
30	8	2.4

60	12	3.6
90	16	4.8
120	20	6.0
150	24	7.2
180	28	8.4
210	32	9.6

NB The myometrium becomes more sensitive to oxytocin in later stages of labour. The oxytocin dose may need to be reduced

If increase needed above 20 milliunits/min (6.0 millilitres/hour), this should be discussed with the available registrar or consultant as rates over this are contraindicated in the BNF and will be an off-label use.

7 Delivery

7.1 Instrumental birth should be considered if there is concern about the fetal wellbeing or for prolonged second stage

7.2 The choice of instrument depends on the balance of clinical circumstances and practitioner experience. Please see *Maternity Protocol MP049: Operative Vaginal Delivery*

7.3 If going for caesarean section - **disconnect** giving set of oxytocin.

7.4 An active management of the third stage should be recommended for all pregnant women and people who have had an oxytocin infusion.

8 Post Delivery

8.1 If oxytocin has been used to augment labour, the infusion should be discontinued immediately following completion of the third stage of labour. If a PPH occurs management should be as *per Maternity Protocol* MP053: Obstetric Haemorrhage

9 References

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