Labour - Active Management and Induction

The active management of labour was pioneered by K O'Driscoll in 1969, as a means of reducing the number of prolonged labours [1]. Its aim was to keep labour to fewer than 12 hours and operative delivery rates to a minimum.

It was originally designed for primiparous women with singleton pregnancies at term, in spontaneous labour.

Active management of labour has been modified significantly over time but the core principles remain:
- Early diagnosis following strict criteria, by a senior midwife.
- Vaginal examination hourly for three hours, then every two hours, at least. This allows the rate of progress to be plotted on a partogram.
- Amniotomy one hour after admission [2].
- Augmentation with Syntocinon® if not dilating at rate of 1 cm/hour [3, 4, 5].
- Women not in labour should be sent home.
- Personal, psychological support for the woman [6].
- Liberal use of epidural anaesthesia.
- Regular rounds by the obstetrician.
- Early cord clamping and controlled cord traction with uterotonic [7].
- Antenatal education classes.
- Regular audit of labour ward process and outcomes.

'Active management' was not designed to lower caesarean section rates, but may have decreased the number of sections performed for dystocia - failure to progress [8]. This effect was most significant in Dublin, where it was first used, but this success has not been matched in other units.

NB: National Institute for Health and Care Excellence (NICE) guidelines do not recommend routinely offering active management of labour [9].

NICE defined the ‘package known as active management of labour’ as one-to-one continuous support; strict definition of established labour; early routine amniotomy; routine 2-hourly vaginal examination; oxytocin if labour becomes slow.

Elements of active management are retained within normal obstetric care - eg, continuous support for the labouring woman and regular rounds by the obstetrician.

Cochrane reviews have showed that early intervention with amniotomy and oxytocin (when there is delay in established first stage of labour) appears to be associated with a modest reduction in the rate of caesarean section over standard care [2].
The partogram is used to chart the progress of the woman in labour. If cervical dilatation is less than expected or stops (progress drops below the 'action line'), augmentation may be required. Other important parameters are also recorded - eg, presence of meconium staining in the liquor and perception of strength of contractions. Many advocate its use; however in the absence of any active management of labour, there is little evidence of a positive effect on labour outcomes[10].

**Induction of labour**

Induction is the process of starting labour by uterine stimulation. It should be used when it is thought that the baby will be safer delivered than it is in utero. Induction needs to be clearly distinguished from augmentation of labour, which is the enhancement of uterine contractions once labour has started.

There has been an increase in the rate of inductions from 20.3% in 2006-7 to 29.4% in 2016-17[11].

Recent research provides no evidence that induction labour increases the caesarean section or compromises neonatal outcomes as compared with expectant management[12]. Concerns over increased risk of failed induction in women with a Bishop's score from 3 to 6 seem unwarranted.

Other research supports this finding and in addition decreased pregnancy-related hypertension in multiparous and nulliparous women, but increased time from admission to delivery for both nulliparous (1.3 hours; 95% CI 0.2-2.3) and multiparous women (3.4 hours; 95% CI 3.2-3.6)[13].
The Royal College of Obstetricians and Gynaecologists (RCOG) and the NICE guidelines define the use of induction in clinical practice:

- It should be offered to women with healthy pregnancy after 41 weeks. Risk of stillbirth increases from 3/3,000 at 42 weeks to 6/3,000 at 43 weeks. Randomised controlled trials suggest that elective induction of labour at 41 weeks of gestation and beyond may be associated with a decrease in both the risk of caesarean section and of meconium-stained amniotic fluid.
- It should be offered to women whose pregnancy is complicated by diabetes, before term.
- In women with pre-labour ruptured membranes after 37 weeks (6-19% of pregnancies), they should be given a choice of either immediate induction, or watchful waiting for up to maximum of four days. 84% labour within 24 hours, increasing by a further 5% every 24 hours after. Beyond four days, risk of infection outweighs any potential benefit to mother or child.

The most common reasons for inducing labour are:

- Prolonged pregnancy - 70% of such cases are induced after 41 weeks, often at the mother's request. The obstetrician will usually agree if the cervix is ripe.
- Suspected intrauterine growth restriction.
- Hypertension and pre-eclampsia - approximately 50% of women with this problem are induced.
- Planned time of delivery in the best interests of the baby - eg, cardiac abnormalities which may need immediate surgery after birth.

Check prior to induction:

- Need to check lie and position of fetus.
- Volume of amniotic fluid.
- Tone of uterus.
- Ripeness of cervix; this is the best predictor of readiness for induction and can be scored using Bishop's system: If the score is >8, the probability of successful delivery with induction is the same as spontaneous onset of labour.

Contra-indications

These are the same as for vaginal delivery. Absolute contra-indications include:

- Severe degree of placenta praevia.
- Transverse fetal lie.
- Severe cephalopelvic disproportion.
- Cervix <4 on Bishop's score - can be overcome by ripening with prostaglandins.

Relative contra-indications include:

- Active primary genital herpes infection.
- High and floating fetal head (risk of prolapsed cord).

Induction procedure

The procedure should be fully discussed with the mother, explaining the technique to be used and any possible side-effects and consequences of failure (caesarean section). She needs to give her informed consent, possibly in writing or, if not, a signed note made in the woman’s records.

- Assess fetal maturity.
- Re-check presentation and position of fetus just before induction.

Methods used include:

- Membrane sweeping.
- Prostaglandin gel or pessary.
- Oxytocin with/or without artificial rupture of membranes.

The most common method of induction in the UK is placing prostaglandin gel or pessary high in the vagina (not cervix). The drug is absorbed through vaginal and cervical epithelium and delivered to the uterus via the bloodstream. The obstetrician or midwife should stay with the woman for 20-30 minutes with cardiotocographic monitoring of the fetus in case of myometrial overreaction.

Complications of induction

It may fail and require caesarean section. All the complications of a normal vaginal delivery, plus:

- Uterine hyperstimulation; fetal distress and hypoxic damage to the baby.
- Uterine rupture, especially in multiparous women.
- Intrauterine infection with prolonged membrane rupture without delivery (less likely if labour occurs within 12 hours).
- Prolapsed cord can occur with first rush of amniotic fluid, if the presenting part is not well engaged.
- Amniotic fluid embolism.
Further reading & references

- WHO recommendations: Induction of labour at or beyond term; World Health Organization, 2018

11. NHS Maternity Statistics; NHS Digital (Nov 2017)
14. Induction of labour; NICE Clinical Guideline (July 2008 - currently under review)

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