



Pain Relief in Labour

by Dr Arthur Tseng

Clearing the misconceptions
surrounding pain relief methods
during labour

FOR COUNTLESS WOMEN, the joy of pregnancy is also intermixed with a fear of labour and the pain that is necessary for delivery. This fear is compounded by all the horror stories of labour pain relief methods that do not work, or worse still, cause unpleasant or dangerous side effects and complications. This article will attempt to dispel certain myths and allay fears – there are good and effective methods of pain relief for labouring women.

Labour Stages

As the pregnancy approaches term, which is described as 37 completed weeks of gestation, the womb (uterus) starts to contract. What were previously painless Braxton-Hick contractions transition into painful labour contractions. Initially, these contractions are irregular, but progressively become regular and more intense. In primiparous (first pregnancy) women, regular contractions have a frequency of one contraction every 10 minutes; and in multiparous women (second pregnancy onwards), contractions are considered regular if they come every 15 minutes or in shorter cycles. Typically, the cervix will be dilated 3cm to 4cm in diameter. The water bag may also rupture, causing leakage of amniotic fluid; and there may be a 'show', where the mucus

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plug is dislodged from the dilating cervix, accompanied by blood.

In the first stage of labour, the cervix progressively dilates from 3cm to 10cm; and this may take eight to 10 hours for a primiparous woman, and four to six hours (on average) for a multiparous woman. In the second stage of labour, where synchronised pushing with contractions deliver the baby, a primiparous woman may actually take up to two hours to deliver her baby, and a multiparous woman may take up to an hour of pushing to achieve delivery. After delivery, cord blood banking may be performed if so desired, and active management of the third stage of labour reduces the risk of severe bleeding (post-partum haemorrhage). This entails delivering the placenta by controlled cord traction, manually rubbing the uterus to cause a sustained contraction, and various medications to stop the bleeding.

Blocking Labour Pains

Pain is debilitating when it occurs repetitively, it saps our concentration and strength. It also causes various bodily changes in the labouring mother, increasing the workload of the mother's heart, increasing blood pressure, reducing placental blood flow, and causing uncoordinated uterine contractions; thus leading to prolonged labour and a greater chance of foetal distress. As such, any method of blocking labour pains would intuitively improve maternal and foetal outcomes, and likely shorten the duration of labour.

There are non-pharmacological and pharmacological methods of reducing or blocking labour pains. In terms of non-pharmacological pain-reducing methods, one of the most useful is that of continuous labour support. Be it the partner or spouse, a relative, a staff nurse or a midwife, the presence of someone to support the labouring mother has been shown to shorten labour duration, reduce request for analgesia, improve

the entire labour experience, and reduce assisted instrumental delivery and Caesarean section.¹ Other methods that appear to work are acupuncture, hypno-birthing and water baths. Acupuncture does relieve pain, thus reducing the need for pharmacological analgesics, and is safe if performed by an expert. Hypno-birthing reduces the need for further analgesics and improves the overall birthing experience. Water baths temporarily relieve pain and muscle spasm, and do not increase the risk of foetal distress. Hence, it is considered safe for a labouring mother to have a warm bath.² What have proven ineffective for relieving pain in labour are massage therapy, touch therapy, certain maternal birthing positions, aromatherapy, aural analgesia, and Transcutaneous Electrical Nerve Stimulation (TENS) – where nerve stimulation by an electronic device purportedly reduces pain.³

Effective Pharmacological Methods for Relieving Pain

There are currently three available options for pain relief in labour – Entonox gas analgesia, Pethidine injections and Epidural analgesia. They have varying effectiveness and are suitable for different occasions. The effectiveness can be quantified by using a Wong-Baker Visual Analogue Scale (VAS) system – where a pain score '0' is completely pain-free, and '10' the worst possible pain. Entonox is considered the mildest of the three pharmacological pain relief methods. It is a mixture of nitrous oxide (laughing gas) and oxygen. Entonox is very safe for mother and the unborn baby, as well as the healthcare workers in the delivery suite.⁴ It effectively reduces the pain score by 1 to 2 points when used to control labour pain.

Intramuscular (IM) Pethidine injection is an opium-derived painkiller used since the 1970s. Both

nursing and medical personnel can administer Pethidine every four to six hours. Opium-derived analgesia causes nausea and vomiting, as such, an anti-nausea agent is usually given at the same time as a preventative agent. Pethidine injections can be given in multiple doses, but this causes drug accumulation in the body, and it cannot be administered if delivery is anticipated in the next four hours, as maximal foetal concentrations are found two hours after injection, thereby causing a risk of sedation in the newborn, requiring neonatal resuscitation.⁵ Pethidine effectively reduces the pain score by 4 to 5 points when used during labour, at appropriate timings.

Epidural analgesia is currently used extensively for labour pain management, and involves the introduction of local anaesthetic solution into the space surrounding the spinal cord nerves, to produce markedly diminished or absent pain perception, via a fine and flexible plastic tube that is inserted by an anaesthetist. It is effective in reducing pain scores by 8 to 9 points. Frequently, labouring women are completely pain-free after an epidural. They can still opt for an epidural if the side effects of other medications are intolerable, or their labours are advanced and Pethidine cannot be administered safely.

Benefits of Epidural

Women with medical conditions also benefit from an epidural. Women with hypertension or pre-eclampsia have better pressure control during labour, and there is better placental blood flow to reduce the risk of foetal distress during labour and delivery, especially in cases of growth restriction. Diabetic mothers and gestational diabetics have better sugar control during labour; and with adequate pain relief, instrumental deliveries or Caesarean section can be facilitated smoothly when required. In cases of twin pregnancy, breech babies, and vaginal birth after caesarean

(VBAC), there is a higher risk of conversion to caesarean section, and an epidural facilitates a smooth transition from labour to caesarean when required.⁶ However, patients with clotting problems due to medical conditions, back skin infections, spinal problems, a history of spinal surgery and severe cardiac disease are not suitable candidates for an epidural.

Amongst the most common side effects experienced is numbness and weakness of the lower body and legs, vomiting, shivering, transient blood pressure changes, difficulty with passing urine, one-sided block (where the patient experiences pain on one side of the body and not the other), as well as rapid progression of labour, such that the labour process is shortened dramatically, and delivery becomes imminent. Rarely, are there very serious side effects like seizures and respiratory arrest.

Myths Surrounding Epidural

Apart from the side effects of epidurals, there are certain myths surrounding the use of an epidural. One such myth is that epidurals can result in long-term backache.

Another such myth is that epidurals may potentially harm the baby, or increase the risk of Caesarean section,

and that epidurals cannot be used too early in labour.

It was discovered that antenatal backache was common, with an incidence of 53% to 89% in pregnant women. Epidural use was not found to contribute to the cause or worsening of backache, instead the pain was due to the physiological changes associated with pregnancy, such as poor posture, spinal anatomical changes associated with pregnancy, hormonal changes resulting in relaxation of ligaments, and water retention which contributes to further ligamentous laxity.⁷ It is excellent advice from obstetricians to return to previous exercise regimes, especially core body strengthening exercises after delivery, to reduce the risk of chronic backache in the long run.

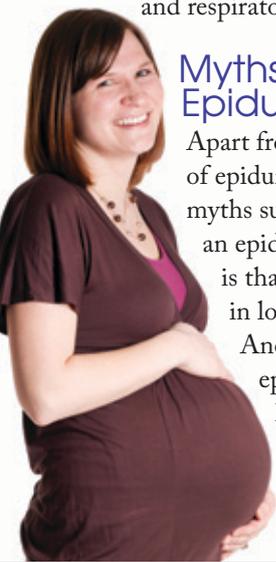
In one study, there was a comparison between epidural given early before established labour had started, and epidurals given later in established labour. It was discovered that patients who had an early epidural (where the cervix was dilated less than 4cm in diameter) were found to have a shorter duration of labour, and did not have an increased risk of progression to Caesarean section. It was also found that the babies delivered had better health assessment scores (Apgar scores), apart from superior pain relief.⁸ It is postulated that shorter labours may be due to relaxation of the pelvic floor muscles when the patient is pain-

free, allowing easier passage of the baby through the birth canal. It was discovered that epidural was associated with better neonatal acid-base balance status, which is a means of assessing peri-partum health, and again alludes to preservation of good placental oxygenation and nutrient transfer to the baby, with use of an epidural during labour.⁹

Labour is an unpleasant experience for many women, and it cannot be acceptable for women to experience pain that can be ameliorated with safe and expeditious methods of analgesia. It is quoted that in “the absence of a medical contraindication, maternal request is a sufficient indication for pain relief during labour”.¹⁰ And knowing what pain relief methods are available, the pros and cons of each method, allows patients to experience a new level of comfort, and equally important, safety for both mother and the unborn baby during labour. eh

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