Intracutaneous sterile water for back pain in labour

J.L. REYNOLDS, MD, CCFP

SUMMARY
Intracutaneous sterile water appears to be a simple, effective, and harmless technique for relieving back pain. This technique has been used to relieve pain of renal colic, whiplash, and back pain in labour. Family doctors often practise obstetrics in small or isolated units that have limited options for pain relief in labour. This technique is simple, is easy to learn, and appears effective for relieving back pain, which complicates about one third of all labours.

RÉSUMÉ
L'injection intracutanée d'eau stérile semble une technique simple, efficace et anodine pour soulager la douleur. On a utilisé cette technique pour soulager la douleur de la colique rénale, le syndrome d'accélération et de décélération cervicale (whiplash) et la lombalgie reliée au travail obstétrical. Les médecins de famille doivent souvent donner des soins obstétricaux dans de petites unités isolées où les options pour soulager la douleur obstétricale sont limitées. Cette technique est simple, facile à maitriser et semble efficace pour soulager la lombalgie obstétricale qu'éprouvent les tiers des patientes en travail.

Dr Reynolds is Chief of the Department of Family Medicine at St Joseph's Health Centre and is Associate Professor in the Department of Family Medicine at the University of Western Ontario in London, Ont.

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We live in a society that more and more expects life to be pain free. Literally tons of painkillers, tranquilizers, and alcohol are consumed every year in the vain attempt to achieve this goal. Our society has tended to view pain as a sensation, as stimulus-response physiology. A recent writer, who has examined our cultural response to pain, suggests that pain is more an experience than a sensation.

While most view pain as indicating disease, childbirth pain does not easily fit this category. Childbirth is a normal life event that for most but not all women is extremely painful. Why a physiologic event like childbirth should be so painful is perhaps more of a theological than a physiologic question. Cultural responses to childbirth pain vary enormously from passive acceptance to active mastery of pain.

Science offers a series of options for pain control during labour and birth, which includes narcotics, inhalants, and regional blocks like epidural, spinal, or paracervical blocks. All of these pain-relieving techniques have drawbacks. Narcotics can cause maternal confusion and neonatal depression. There are concerns about the exposure of health care providers to prolonged high levels of nitrous oxide used in the labour and birth environment. Epidural analgesia has become the gold standard of pain relief for labour and birth. Its use varies widely among Canadian urban centres, varying between zero to 80% of all labours. While providing excellent pain relief, it is associated with an increase in pyrexia during labour and the possibility of long-term backache and neurologic symptoms.

Epidural analgesia can cause sufficient motor block to adversely affect the mobility of the labouring woman. As a result, some women feel disconnected from their birth, and most lose the reflex desire to push. Because of these side effects, physicians must be especially skilled to avoid an increase in forceps- or vacuum-assisted births and in the frequency of episiotomy associated with epidural analgesia.

Rural and small-town family practice obstetrics
Despite special anesthesia training programs, most family physicians who practise in small urban or rural centres

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do not have ready access to epidural analgesia. Their choices are usually limited to injectable narcotics, like meperidine, for early labour when birth is not expected within the subsequent 4 hours, or short-acting narcotics, like fentanyl, when the birth is not expected within the next 30 minutes. These drugs, combined with nitrous oxide and oxygen, provide the basis for most analgesia offered in these settings.

**Nonpharmacologic methods of pain relief**

Interest in nonpharmacologic ways to relieve the pain of labour and birth is growing. Showers, tub baths, and Jacuzzis are commonly available in

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Figure 1. Identify landmarks by palpation

![Figure 1. Identify landmarks by palpation](image1)

Figure 2. Mark optimal injection sites

![Figure 2. Mark optimal injection sites](image2)
modern birth settings and seem to provide pain relief to many women during labour.

Perhaps the most powerful nonpharmacologic method for pain relief during labour is the continuous presence of a caring, supportive woman. Several randomized trials show one-to-one support for women in labour not only seems to result in less pain and less analgesic use, but also results in shorter labours, fewer cesarean sections, and less fetal distress.9,10

Some argue that, because most male partners are present during labour and birth, many obstetric facilities are already encouraging one-to-one support. Unfortunately, husbands can never have a personal experience of labour or childbirth and, therefore, are limited in the kind of support and encouragement they can provide to their spouses. Perhaps, in order to reap the full benefits of labour support, we need to encourage more couples to have a trustworthy woman who has given birth herself to act as labour support. This is particularly true in obstetric units that do not offer one-to-one nursing care. The other nonpharmacologic method of pain relief, that has as yet to gain wide acceptance in this country, is transcutaneous nerve stimulation (TENS).11

Low back pain in labour
Approximately one third of women in labour have severe low back pain.12 Some patients have continuous pain; others feel the pain of contractions primarily in the back. The pain supply of the cervix is the same as the body of the uterus (T10-L1). Referred pain from these nerve roots can be felt in the lower back and sacrum (T11-L2) or over the lower abdomen and pubis (T10-11).

Based on an understanding of the gate control theory,13 various methods to provide relief from labour pain have treated dermatomes with the same innervation. Intracutaneous sterile water (ISW) is a simple, apparently safe procedure that shows promise for relieving low back pain in labour. This technique could be of particular use to family doctors practising in hospitals that do not have access to epidural analgesia. It could also be helpful for women who want to avoid medication during labour and birth. Because the technique involves skills already found in nursing practice, there is no reason nursing staff could not add this to the many ways they help women in labour.

Intracutaneous sterile water
Giving ISW has been used as a method of pain relief for three conditions: renal colic,14 neck and shoulder pain (whiplash syndrome),15,16 and low back pain during labour.17-19 The technique is thought to work either by the gate theory of pain or through the release of endogenous opioid endorphins.

Evidence of effectiveness
Three studies of ISW for the relief of low back pain in labour have been published; two were randomized. In the first study, Lytzen and colleagues17 observed 83 women who experienced low back pain in the first stage of labour. The women were given ISW papules over the sacrum. Ninety-three percent found instant and complete relief from the low back pain lasting as long as 3 hours.

A randomized trial compared ISW with subcutaneous injections of isotonic saline in a group of 45 women with low back pain in the first stage of labour.18 Researchers found a significant reduction in pain score, lasting up to 90 minutes, among those receiving ISW as compared with subcutaneous normal saline. However, they did not find any difference in the use of injectable narcotics between the two groups. This finding could be due to the fact that women will continue to experience labour pain but not labour-related back pain.

The most recent study19 involved 272 women in labour complaining of severe low back pain. They were randomly allocated to either ISW
or isotonic saline given intracuta-
neously at four sites in the low back
area, approximately corresponding to
the borders of the sacrum. Intensity
was measured using a visual analog
scale before the block was given, and
1 hour and 2 hours later. Pain scores
1 hour and 2 hours after the blocks
showed significantly better analgesia
in the sterile water group. There were
no adverse outcomes and patient
acceptability was high.

**Experience of one family physician**

I previously reported on a group of six
women who used this technique for
relief of low back pain during labour.20

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**Figure 3.** Inject points with 0.1 ml of intracutaneous sterile water

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**Figure 4.** Appearance after injection
Most women achieved rapid, dramatic, and often complete relief of back pain in labour. The analgesic effect usually lasted 60 to 90 minutes and could be repeated for continued analgesic efficacy.

I have had an opportunity to try the technique in the second stage with rapidly progressing labours. While there seems to be some relief, it does not appear to make much of an impact on the overall intensity of the pain at this stage in labour. The study of Lytzen and colleagues\(^7\) found that only 54% of women found ISW sufficient for the second stage; another 31% found it partly sufficient, and 15% found it insufficient.

**Administration technique**

The technique is very simple and easy to learn. Materials needed are an ampule of sterile water (not normal saline), small tuberculin syringe with a 25-gauge needle, and an alcohol skin wipe. With the woman lying on her side in bed, leaning forward over the bed, sitting sideways on a chair, or sitting facing the back of the chair, the anatomic points are more easily palpable. The posterior superior iliac spines are palpated by feeling the bony prominences just lateral to the sacrum and below the iliac crest (Figure 1). These can be marked with pen or the indentation of a fingernail (Figure 2).

The skin is cleansed with alcohol. The 25-gauge needle is placed just under the skin surface over these points and 0.1 mL injected intracutaneously to raise a small bleb in the skin on each side (Figure 3). Two or three centimetres below, and 1 to 2 cm medial, two further intracutaneous blebs are raised (Figure 4). The procedure takes approximately 25 seconds. Most women feel substantial stinging and pain while the water is injected. This lasts about 30 seconds and disappears. Some recommend that the injection be done during a contraction to minimize the woman's perception of pain.

If the technique is going to work, the woman should notice considerable if not complete relief of back pain within the first 2 minutes after the injection. The injection can be repeated after an hour or two for further relief.

**Conclusion**

The search for safe, effective pain relief techniques for women during labour and birth has been an ongoing challenge. For family physicians, especially those practising in small obstetric units, the options have always been limited. Intracutaneous sterile water shows some promise as a nonpharmacologic method of relieving low back pain for women in labour. It could find a small role in childbirth care or it could pass as a mere fad; time will tell. ■

**Requests for reprints to:** Dr J.L. Reynolds, Department of Family Medicine, St Joseph's Health Centre, PO Box 5777, London, ON N6A 4L6

**References**

Miconazole Nitrate Cream 2%

Prescribing Information

MICATIN** Cream (miconazole nitrate 2%)

Classification: Antifungal

Indications and Clinical Use:

MICATIN Cream is indicated for the topical treatment of dermatophytes and Candida infections and also lesions caused by mixed infections involving susceptible fungi. It has been clinically effective in treating tinea pedis (athlete’s foot), tinea cruris, tinea corporis and tinea versicolor caused by dermatophytes.

MICATIN Cream is also effective in cutaneous candidiasis, excluding moderate to severe candidal paronychia. Among the organisms against which MICATIN Cream has been found effective are Trichophyton rubrum, Trichophyton mentagrophytes, Trichophyton interdigitale, Epidermophyton floccosum, Microsporum canis, Microsporum gypseum, species of Candida including C. albicans and Malassezia furfur.

Contraindications:

None known.

Precautions:

Discontinue medication if sensitization or marked irritation occurs. The introduction of MICATIN Cream brand miconazole nitrate cream 2% into the eyes should be avoided.

Adverse Reactions:

On rare occasions it has been reported that patients treated with MICATIN Cream experience mild pruritus, irritation and burning at the site of application.

Dosage and Administration:

Sufficient MICATIN Cream should be applied to cover the infected areas twice daily: morning and evening. It should be applied sparingly and smoothed in well to avoid maceration effects. The treated area should be massaged gently until the MICATIN Cream disappears.

Early clinical improvement (1-2 weeks) has been seen in the treatment of infections caused by common dermatophytes and Candida species, but resistant lesions may take longer to clear. Candida infections should be treated for two weeks and dermatophyte infections for one month in order to reduce the possibility of recurrence. If patient shows no clinical improvement after 30 days of treatment, the diagnosis should be reconsidered.

Availability of Dosage Forms:

MICATIN Cream is supplied as 2% miconazole nitrate cream in 15 and 30 gram tubes. Product Monograph is available upon request.