

Postpartum Perineal Pain in Primiparous Women: A Comparison of Two Local Anaesthetic Agents

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ABSTRACT

Background: *Episiotomy is the commonest obstetric surgical operation performed to increase the introitus to enhance vaginal delivery. This study was to compare the effect of two local anaesthetic agents on postpartum perineal pain and time for demand for oral analgesics.*

Methods: *A randomized double-blinded controlled clinical trial was conducted in primiparous women who had spontaneous vaginal delivery, comparing 1% plain lidocaine and 0.25% plain bupivacaine infiltration for the repair of selective episiotomy or perineal injury.*

Results: *The two groups were comparable in socio-demographic characteristics. At 2 and 4 hours, women who had perineorrhaphy under lidocaine had significantly higher pain scores on the Visual Analogue Scale (VAS) than those who had the repair under bupivacaine, (4.0 v. 2.0) and (6.0 v. 3.0) respectively. At the 6th hour, the mean pain score for the bupivacaine group was 4.0 on the VAS while the lidocaine group had already received a dose of oral analgesic (Ibuprofen 400mg) following severe pain from the repair. There was however no statistically significant difference in the pain score on the VAS between the two groups at the time of request for oral analgesics. The mean time lapse before demand for oral analgesics for the lidocaine group was 2.25 ± 0.46 hrs (Mean \pm Standard deviation) while that for the bupivacaine group was 7.13 ± 1.56 hrs (Mean \pm Standard deviation). The P value was $P < 0.0000$ (Student's t-test) and statistically significant.*

Conclusion: *It is concluded that the patients in the bupivacaine group had a prolonged analgesia and needed fewer doses of oral analgesics in the immediate postpartum perineal repair period.*

KEYWORDS: *Postpartum; Perineal Pain; Local anaesthetic agents.*

Paper accepted for publication 20th December 2005.

INTRODUCTION

Episiotomy is the commonest obstetric surgical operation¹ performed to increase the introitus to enhance vaginal delivery. This and other perineal injuries from childbirth are associated with significant pain, infection and loss of mobility during the immediate postpartum period.

Pain from episiotomy or perineal injury, which may be severe, is often poorly treated. With the current emphasis on early discharge after normal spontaneous vaginal delivery, it is becoming increasingly difficult to perform an adequate post-episiotomy pain assessment in these parturients.

In our institution, the standard protocol for the repair of episiotomy or perineal injury involves the use of 1% lidocaine for infiltration, oral analgesics and prophylactic antibiotics. Maternal satisfaction from this protocol and the use of other local anaesthetics has not been previously studied even though the mechanism of action of bupivacaine is not different from that of lidocaine.

This study was therefore undertaken to compare the control of pain following the repair of episiotomy or perineal injury using two different local anaesthetics over an observation period of 24 hours.

METHODS

A randomized double-blinded controlled study was conducted in consecutive primiparous women who had spontaneous vaginal delivery, comparing 1% plain lidocaine and 0.25% plain bupivacaine for the repair of selective episiotomy or perineal injury. The study was conducted at the University of Port Harcourt Teaching Hospital, Port Harcourt, one of the highest referral centres for obstetric care in the Niger Delta region of Nigeria. Recruitment occurred from January 2004 to August 2004 during the 24-hour day shift. Ethical approval for the study was obtained from the Institution's Ethical Committee for Clinical Research.

Consecutive primiparous women who had given birth vaginally and had an episiotomy or a perineal tear were included in the study. Exclusion criteria included allergy to either study drug, a history of drug dependence, regular use of analgesic drugs before or during pregnancy, and any medical condition known to be potentially exacerbated by non-steroidal anti-inflammatory agents (NSAIDs), including a history of gastrointestinal ulcer or bleeding. Women with postpartum haemorrhage either due to episiotomy or any other major postpartum complication were also excluded.

Following assessment for eligibility, subjects were recruited in the delivery suite and allocated by a midwife. Consent was obtained before established labour.

Subject assignment was concealed in opaque envelopes. The patients and their caregivers (midwives and investigators) were blinded with respect to the group allocation. The head of the delivery suite, however maintained the study code to facilitate accessibility in case of an adverse reaction.

The patients were allocated randomly into two groups of 241 each with group A receiving 1% lidocaine while group B received 0.25% plain bupivacaine. Following aseptic procedure and draping of patients, 10-15ml of the allocated concealed local anaesthetic agent was used to infiltrate the vaginal skin and the perineum after careful aspiration and the necessary repair carried out. Pulse and blood pressure were monitored while maintaining verbal contact with the patient. The patients were transferred to the postnatal ward for observation after the repair. The time lapse for demand for oral analgesic was recorded and compared to the severity of pain assessment by the patient using the Visual Analogue Scale (VAS). Both groups received the same type and dose of oral analgesics on demand. Complications following the procedure were recorded and treated.

RESULTS

A total of 1,293 women had vaginal delivery during the period of study. Out of this, 482 (37.3%) had episiotomies while 18 (3.75%) had various degrees of perineal tears. However, only 422 satisfied the criteria and were included in the study. Exclusions from the study were either due to maternal exhaustion, severe post-partum haemorrhage or lack of sufficient nursing staff during the evening and at night.

The two groups were comparable in socio-demographic characteristics (Table I). All the patients in the two groups had selective episiotomy except those who sustained perineal tears in the course of delivery. There were a total of 23 (5.45%) instrumental (vacuum/forceps) births in both groups. The severity of perineal pain did not differ in the first hour post-perineorrhaphy. The mean ratings of pain intensity within this period were between zero and one in both groups. At 2 and 4 hours, women who had perineorrhaphy under lidocaine had significantly higher pain scores on the VAS than those who had the repair under bupivacaine, (4.0 v. 2.0) and (6.0 v. 3.0) respectively (Table II).

At the 6th hour, the mean pain score for the bupivacaine group was 4.0 on the VAS while the lidocaine group had already received a dose of oral analgesic (Ibuprofen 400mg) following severe pain. There was however no statistically significant difference in the pain score on the VAS between the two

groups at the time of request for oral analgesics (Table II).

The mean time lapse (Table III) before demand for oral analgesics for the lidocaine group was 2.25 ± 0.46hrs (Mean ± Standard deviation) while that for the bupivacaine group was 7.13 ± 1.56hrs (Mean ± Standard deviation) (Table III). The difference was statistically significant (P<0.0) (Student's t-test).

The mean number of doses of oral analgesics ingested in 24 hours was 1.0 ± 0.67 for the bupivacaine group while it was 2.3 ± 0.82 for the lidocaine group (P>0.059). Although there was no statistically significant difference between the two groups, the lidocaine group received more doses of oral analgesics.

Table I. Demographic Data of Study Subjects

PARAMETERS	GROUP A (LIDOCAINE)	GROUP B (BUPIVACAINE)
AGE (Mean ± SD (Years))	26.5 ± 3.1	29.8 ± 26
EDUCATIONAL LEVEL		
Tertiary	65 (30.81%)	70 (33.18%)
Secondary	102 (48.34%)	113 (53.56%)
Primary	34 (16.11%)	20 (9.48%)
None	10 (4.74%)	8 (3.79%)
OCCUPATION		
Civil servant	39 (18.48%)	50 (23.70%)
Self Employed	48 (22.75%)	57 (27.01%)
Student	45 (21.33%)	36 (17.06%)
Unemployed	79 (37.44%)	68 (32.23%)

Data is in Number (and Percentage)

Table II. Mean Pain Score on Visual Analogue Scale (Vas)

TIME	GROUP A (LIDOCAINE)	GROUP B (BUPIVACAINE)	P VALUE
During repair	0	0	0
One hour post-repair	0	0	0
Two hours post-repair	4.0 (0.42)	2.0 (0.57)	P<0001
Four hours post-repair	6.0 (0.79)	3.0 (0.92)	P<0001
At demand for analgesic	5.4 (0.52)	5.6 (0.52)	P=0.20

Mean (and SD)

Table III. Mean Time Lapse before Demand for Analgesia

TIME INTERVAL	GROUP A (LIDOCAINE)	GROUP B (BUPIVACAINE)	P VALUE
	2.25 (0.46) hrs	7.13 (1.56) hrs	(P< 0.0001)

Mean (and SD)

DISCUSSION

Perineal pain following episiotomy or perineal tear is one of the most distressing experiences in the immediate postpartum. This pain is frequently under-reported. One report by Sanders *et al*/however, showed that 16.5% of women described it as 'distressing', 'horrible' or 'excruciating' pain while receiving perineal sutures². Women without an elective episiotomy may sustain perineal laceration that will require surgical repair. Pain from such repairs can cause significant

morbidity in the puerperium^{3,4}.

In the United States, it is estimated that episiotomies are used for 62.5% of vaginal deliveries⁵. In Europe, the rate is about 30%⁶. Published works show that the rate in Nigeria is between 35.6% and 54.9%^{7,8,9}. Our study demonstrated a rate of 37.3%.

Various methods of pain relief including application of lidocaine gel, and use of local anaesthetic sprays, have been advanced in the management of postpartum perineal pain^{10, 11, 12}. In developed countries, most of these repairs are under epidural analgesia earlier instituted for pain relief in labour. Infiltrative anaesthesia is frequently used to perform perineorrhaphy in our centre. Following the repair, most of the patients were observed and discharged home within 12-24 hrs on oral analgesics due to pressure for bed space. There were no follow-up or home visits, thus the effectiveness of the method of pain relief after discharge is not known.

Local anaesthesia is useful in a variety of clinical situations. It facilitates patient cooperation and comfort during procedures. The use of bupivacaine, a long-acting amide local anaesthetic agent gave these patients a more prolonged period of pain relief. It has the same mechanism of action for pain relief with lidocaine by stabilising axonal membrane thereby inhibiting transmission of electrical impulse. This study however, showed that the demand for oral analgesics was much lower in the bupivacaine group than the lidocaine group even though the pain threshold and tolerance levels of these patients were not previously determined. The usefulness of bupivacaine infiltration has also been reported in instituting postoperative pain relief following hysterectomy and herniorrhaphy^{13,14}. The concentration of bupivacaine used in this study is 0.25%, which is much lower than the 0.75% concentration known to cause severe cardiovascular sequelae¹⁵. Lidocaine or Bupivacaine with adrenaline may also be used for wound infiltration. The mixture of Local anaesthetics and adrenaline prolongs the duration of pain relief by reducing the rate of absorption and increases the local dose that is administered without systemic toxicity. It has however been shown that this mixture tends to impair wound healing¹⁶.

Early maternal discharge from the hospital after normal vaginal delivery is possible following adequate pain relief during and after perineorrhaphy. The trend at present is towards a short period of postnatal hospital stay. Bossert *et al* have shown no increase in maternal morbidity following early hospital discharge¹⁷. Though early discharge is possible in the face of better pain management and proper home visit, the dearth of

manpower is a major limitation in our centre. This study did not show any difference between the two groups in their ability to do chores (personal hygiene) and to sit/stand up comfortably in the first hour post-repair. The ability was, however, sustained over a more prolonged period in the bupivacaine group. This period of analgesia can facilitate the establishment of bonding between mother and infant with minimal perineal discomfort¹⁸.

The study demonstrates 0.25% bupivacaine as a better alternative in the management of immediate postpartum perineal pain. This was shown in the time lapse in the demand for oral analgesics amongst these women. The study however, could not assess their levels of satisfaction during the postnatal review.

CONCLUSION

Patients who had perineorrhaphy under 0.25% bupivacaine infiltration had prolonged analgesia and needed fewer doses of oral analgesics. It is recommended, that this local anaesthetic agent be used during perineorrhaphy to reduce the immediate postpartum perineal pain and oral consumption of oral analgesics.

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