

Research Article

Lidocaine-Prilocaine Cream versus Lidocaine-HCL Injection for Pain Relief during Second Degree of Perineal Tear Suturing after Vaginal Delivery: A Comparative Study

Lidokain-Prilokain Topikal versus Injeksi Lidokain-HCL dalam Menghilangkan Nyeri Selama Penjahitan Luka Perineum Tingkat Dua Pascapersalinan Pervaginam: Sebuah Studi Komparatif

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Abstract

Objective: To compare the effectiveness of topically applied lidocaine-prilocaine cream with lidocaine-HCl injection in the reduction of pain during second degree of perineal tear suturing after vaginal delivery.

Methods: One hundred and twenty-four subjects with second degree of perineal tear after vaginal delivery were enrolled in this randomised clinical trial. Subjects were assigned randomly to have either application of lidocaine-prilocaine cream (n=62) or local injection of lidocaine-HCl (n=62) for anaesthetic during perineal suturing. Pain measured with visual analogue scale (VAS) for the first 5 minutes during the perineal suturing. Statistical analysis was performed by comparative analytic numerical unpaired with independent t-test between the two groups and significance was assessed at $p < 0.05$. Data were presented as mean \pm standard deviation (SD).

Results: There was no significant different of pain score between lidocaine-prilocaine cream and lidocaine-HCl injection group (5.66 ± 1.07 vs 5.56 ± 1.5 ; $p = 0.473$).

Conclusion: Application of lidocaine-prilocaine cream as effective as injection of lidocaine-HCl for reducing pain during second degree of perineal tear suturing after vaginal delivery.

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Keywords: lidocaine-prilocaine cream, lidocaine-HCl injection, pain, perineal suturing, vaginal delivery

Abstrak

Tujuan: Untuk membandingkan efektivitas antara lidokain-prilokain topikal dan lidokain-HCl injeksi dalam mengurangi nyeri selama penjahitan luka perineum tingkat dua setelah persalinan normal.

Metode: Seratus dua puluh empat perempuan dengan robekan perineum tingkat dua postpartum pervaginam mengikuti uji coba klinis secara acak ini. Enam puluh dua perempuan (n=62) menggunakan lidokain-prilokain topikal dan 62 perempuan lainnya (n=62) menggunakan injeksi lokal lidokain-HCl untuk anestesi selama penjahitan perineum. Nyeri diukur dengan visual analog scale (VAS) untuk 5 menit pertama selama penjahitan perineum. Analisis statistik dilakukan dengan uji numerik komparatif tidak berpasangan dengan uji t independen antara kedua kelompok dengan tingkat kemaknaan $p < 0,05$. Data disajikan sebagai rerata \pm standar deviasi (SD).

Hasil: Tidak terdapat perbedaan signifikan skor nyeri antara kelompok lidokain-prilokain topikal dan kelompok injeksi lidokain-HCl ($5,66 \pm 1,07$ vs $5,56 \pm 1,5$; $p = 0,473$).

Kesimpulan: Efektivitas lidokain-prilokain topikal untuk mengurangi nyeri sama dengan injeksi lidokain-HCl selama penjahitan robekan perineum tingkat dua postpartum pervaginam.

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Kata kunci: lidokain-prilokain topical, lidokain-HCl injeksi, nyeri, penjahitan perineum, persalinan normal

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INTRODUCTION

Approximately 75% of women post vaginal birth will have some degree of trauma to their labia, vaginal walls or perineum. The inadequate diagnosis and inappropriate management of the trauma are strongly associated with maternal morbidity. Perineal trauma is associated with significant short- and long-term morbidity.¹ Perineal trauma

can occur spontaneously or result from episiotomy. Perineal pain is reported to be the most severe in the immediate postnatal period.² Discomfort of perineal pain continues for up to two weeks postpartum in about 30% of women and 7% report pain at three months.³

More than 60% of labours are followed by rupture of the perineum which require suturing. Perineal tear is one of the birth trauma which the

main factor is perineal condition.⁴ Rates of perineal trauma from episiotomy that require suturing between 44% and 79%.^{5,6} A 2nd-degree perineal tear is defined as injury to perineum involving perineal muscles but not involving the anal sphincter.⁷ Morbidity following perineal trauma has led to these arch of different interventions to be used during the second stage to reduce perineal trauma. Perineal injection with local anaesthetics is the most common technique to provide anaesthesia during perineal suturing. Another alternative technique to injectable anaesthetic is topical anaesthetic such as lidocaine-prilocaine cream. This anaesthetic is a mixture of 2.5% lidocaine and 2.5% prilocaine that is used widely as topical anaesthetic for pediatric, dermatologic, reconstructive, and gynecologic minor procedures. The advantages of this anaesthetic are locally effect without significant systemic absorption, ease of use, and transient side effects.⁸

Hence, this study was aimed to compare the effects of lidocaine-prilocaine cream and lidocaine-HCl injection on reduction of perineal pain during episiotomy repair after normal vaginal delivery.

METHODS

This randomised clinical trial was conducted at Dr. Wahidin Sudirohusodo Hospital and some of its affiliated hospitals between April and September 2016. The study protocol was approved by the Health Research Ethics Committee of Faculty of Medicine, Universitas Hasanuddin. Vaginally postpartum women with second degree of perineal

tear were enrolled in this study. Written informed consent was obtained from all women who agreed to participate in the trial before study entry. Women were assigned randomly to have either local injection of lidocaine-HCl or application of lidocaine-prilocaine cream for pain relief during perineal suturing. Pain measured with visual analogue scale (VAS) for the first 5 minutes during the perineal suturing. Statistical analysis was performed by comparative analytic numerical unpaired with independent t-test between the two groups and significance was assessed at $p < 0.05$. Data were presented as mean \pm standard deviation (SD).

RESULTS

A total of 124 vaginal postpartum subjects were enrolled. Of these, 62 subjects were assigned to receive local anaesthesia with lidocaine-HCl injection, and 62 subjects had topical application of the lidocaine-prilocaine cream. The only significant difference of characteristics between both groups was BMI ($p < 0.05$). The clinical characteristics of postpartum women are summarised in Table 1. Analysis of pain score during perineal suturing based on subject characteristics shows length of perineal suturing for longer than 15 minutes significantly different ($p = 0.026$) between lidocaine-prilocaine cream and lidocaine-HCl injection (Table 2). Pain scores during perineal suturing are displayed in Table 3. There was no significant difference in pain score between both groups ($p > 0.05$).

Table 1. Subject Characteristics

Characteristics	Lidocaine-prilocaine cream (n=62)	Lidocaine-HCl injection (n=62)	p-value
Age (years)	24.3 \pm 3.6	24.6 \pm 4.3	0.654
BMI (kg/m ²)	21.5 \pm 1.9	22.3 \pm 2.4	0.038
Length of the second stage of labour (minute)	31.2 \pm 12.0	36.5 \pm 20.6	0.089
Birth weight (gram)	3002.3 \pm 339.6	2996.9 \pm 348.2	0.931
Length of perineal suturing (minute)	15.1 \pm 4.2	15.8 \pm 5.1	0.401

Table 2. Comparison of Pain Score Based on the Characteristics between Lidocaine-Prilocaine Cream and Lidocaine-HCl injection

Characteristics	Lidocaine-prilocaine cream (n=62)	Lidocaine-HCl injection (n=62)	<i>p-value</i>
Age			
Low risk	5.66 ± 1.07	5.06 ± 1.49	0.535
High risk	0	4.5 ± 2.12	0
BMI (kg/m ²)			
Normal	5.68 ± 1.09	5.67 ± 1.5	0.699
Abnormal	5.33 ± 0.58	5 ± 1.41	0.655
Length of the second stage of labour (minute)			
< 60	5.66 ± 1.09	5.52 ± 1.49	0.386
≥ 60	5.67 ± 0.58	5.8 ± 1.62	1.000
Episiotomy			
Yes	5.59 ± 1.1	5.5 ± 1.61	0.426
No	6 ± 0.89	5.72 ± 1.23	0.558
Length of perineal suturing (minute)			
≤ 15	5.4 ± 0.74	5.73 ± 1.43	0.243
> 15	6 ± 1.33	5.32 ± 1.6	0.026

Table 3. Pain Score during Perineal Suturing

	Mean ± SD	<i>p-value</i>
Lidocaine-prilocaine cream (n=62)	5.66 ± 1.07	0.473
Lidocaine-HCl injection (n=62)	5.56 ± 1.5	

DISCUSSION

This study shows there is no significant difference between lidocaine-prilocaine cream and lidocaine-HCl injection in reducing pain during second degree of perineal tear suturing of vaginally postpartum suggest that the two anaesthetics had similar effects. Similar results were also reported by previous study that compared the same anaesthetic for perineal suturing with this study.⁹ However, our findings are in disagreement with results from the study by Franchi et al. who observed lidocaine-prilocaine cream more effective in reducing pain compared to mepivacaine injection during perineal repair after delivery.⁸

Injection anaesthetics are most frequently used due to its safety, inexpensive, wide availability, and immediate effect. Insertion of the needle and injection of the anaesthetic into the skin, burning sensation during infusion, oedema, and risks of accidental intravascular administration are the

side effects of this anaesthetic. Lidocaine-prilocaine cream releases two amide anaesthetic (2.5% lidocaine and 2.5% prilocaine) to the dermal layers before penetrating the smooth and striated muscle and the individual axons within the nerve. An inward flux of sodium ions through the nerve membranes inhibit nerve conduction to induce pain. Compared to the side effects of lidocaine injection, lidocaine-prilocaine cream generally mild and transient and no serious reactions that were reported.

Although this present study show lidocaine-prilocaine cream and lidocaine-HCl injection in terms of pain reduction, our results indicated that lidocaine-prilocaine cream as effective as lidocaine-HCl injection. Therefore, the lidocaine-prilocaine cream can be an alternative for lidocaine which has been routinely used for years during perineal tears repair and episiotomy. Finally, it has been stated that lidocaine-prilocaine cream can be an efficient alternative to the injectable analgesics used for local obstetric and gynecologic procedures.

CONCLUSION

In conclusion, this study has shown that application of lidocaine-prilocaine cream as effective as

injection of lidocaine-HCl for reducing pain during second degree of perineal tear suturing after vaginal delivery.

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