

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Incidence of Low Back Pain after Spinal Anaesthesia with And Without Local Infiltration With Lignocaine.

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ABSTRACT

Low back pain has reported following spinal anaesthesia. Anaesthetization of skin, interspinous ligament and muscles is usually recommended before spinal anaesthesia. The purpose of this prospective study was to evaluate the effect of local lignocaine injection on the incidence and severity of low back pain in patients undergoing inguinal herniorrhaphy surgeries. 100 ASA Gr 1 and 2 male patients undergoing inguinal herniorrhaphy surgeries under spinal anaesthesia were included. Patients were randomly assigned into two groups (defined by local injectate) using a sealed envelope technique. Patients in group L received 4ml (40mg) lignocaine 1% and patients in group C received 4ml saline. Spinal anaesthesia was performed at L3-L4 interspace with patients in sitting position. Skin, subcutaneous tissue, a part of interspinous ligament and part of periosteum were infiltrated with 4ml lignocaine 1% or 4ml saline up to depth 3cm with 26 gauge dental needle. Intraoperative monitoring consists of 5 leads ECG, noninvasive blood pressure and pulse oximeter. Postoperatively patient is reinterviewed and asked about presence of backache by using 11 point numeric rating scale (NRS) at 24, 48 and 72 hrs. At the end of 24 hrs NRS score is significantly high in control group as compared to lignocaine group. Local injection of lignocaine before spinal anaesthesia decreased the severity of low back pain following spinal anaesthesia, particularly in the early post operative period.

Key words: low back pain, spinal anaesthesia, local infiltration of lignocaine

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INTRODUCTION

Low back pain has reported incidence ranging from 2% to 35% following spinal anaesthesia [1-3]. Studies have shown that postoperative low back pain incidence was not related with differences in size or shape of spinal needles [4-6]. Different needles and methods have been developed recently to reduce incidence of low back pain with unsatisfactory results. Some studies suggested that local interspinous administration of low dose corticosteroids and nonsteroidal anti-inflammatory drugs reduced the incidence of back pain after epidural blockade [7-9].

Anaesthetization of skin, interspinous ligament and muscles is usually recommended before spinal anaesthesia [10, 11] but data is limited on whether local administration of lignocaine reduces low back pain after spinal anaesthesia.

The purpose of this prospective study was to evaluate the effect of local lignocaine injection on the incidence and severity of low back pain in patients undergoing inguinal herniorrhaphy surgeries.

MATERIAL AND METHODS

This is prospective, randomized double blind study carried out at Govt Medical college, Latur over a period of six months. After approval from ethical committee and written informed consent from the patient, 100 ASA Gr 1 and 2 male patients undergoing inguinal herniorrhaphy surgeries under spinal anaesthesia were included. An exclusion criteria is previous history of backache, failed spinal anaesthesia, spinal deformity, back surgeries, spinal deformity, low back injuries, neurological diseases and psychiatric illness. Patients who experienced multiple attempts of spinal needle placement also excluded. Patients were randomly assigned into two groups (defined by local injectate) using a sealed envelop technique. Patients in group L received 4ml (40mg) lignocaine 1% and patients in group C received 4ml normal saline. Patients received no premedication before arrival in operation theatre. Before spinal block each patient received a rapid infusion of 10ml/kg of lactated ringer's solution. Intraoperative monitoring consists of 5 leads ECG, noninvasive blood pressure and pulsoximeter.

Spinal anaesthesia was performed at L3-L4 interspace with patients in sitting position. Skin, subcutaneous tissue, a part of interspinous ligament was infiltrated with 4ml lignocaine 1% or 4ml saline up to depth 3cm with 26 gauge dental needle. Subarachnoid space identified in the midline using a 25 gauge quincke's spinal needle. After reflux of cerebrospinal fluid 3ml (15mg) heavy bupivacaine 0.5% injected into subarachnoid space. After completion of injection, patient returned supine position with pillow beneath head. Analgesia assessed by pinprick method.

Postoperatively patient received diclofenac sodium 1mg/kg 8hrly for surgical pain. Patients were interviewed postoperatively at 24, 48 and 72 hrs was asked about presence of backache using 11 point numeric rating scale (NRS) where 0-no pain and 10-the worst

imaginable pain. Post spinal backache was classified as none (0), mild (less than 3), moderate (3-7) and sever (more than 7) based on NRS score. The statistical analysis was carried out by using student's t test and Mann Whitney U-test was used for comparison of continuous variables and statistical significance was set at p value less than 0.05.

RESULTS

Patient's characteristics are presented in table

Table 1

	Group L	Group C	P value
No	50	50	< 0.05
Age(yrs)	23(SD 2.8)	23.5(SD 3.8)	< 0.05
Weight(kgs)	75.2(SD 11.5)	73.7(SD 7.8)	< 0.05
Height(cms)	176.1(SD 5.8)	175.6(SD 5.3)	< 0.05
Surgery duration	41.8(SD 9.6)	45.8(SD 13.8)	< 0.05

Table 2: Incidence and Severity of back pain in groups

	Group C			Group L		
	24h	48h	72 h	24h	48 h	72 h
No (NRS 0)	39	46	50	37	42	49
Mild (NRS 1-3)	5	3	-	12	7	1
Moderate (NRS 4-7)	6*	1	-	1	1	-
Sever (NRS >7)	-	-	-	-	-	-

*significant difference between groups=0.023

At the end of 24 hrs mild pain was complained by 5 patients in control group and 12 patients in lignocaine group while moderate pain complained by 6 patients in control and 1 patient in lignocaine group which is significant. Thus at the end of 24 hrs NRS score is significantly high in control group as compared to lignocaine group but not significantly different at 48 and 72 hrs. No specific complications noted during hospital stay.

DISCUSSION

Postoperative low back pain may be secondary to intraoperative position of the patients, type of the operation and prolonged bed rest. Thus we have decided to perform this study in patients undergoing inguinal herniorrhaphy because the surgery period is relatively short and early ambulation is possible.

Low back pain is reported after all types of anaesthesia including general anaesthesia. The incidence of low back pain in patients receiving spinal anaesthesia is higher [4-6]. It is usually characterized by the sensitivity of lumbar spinous area. Although back pain is generally mild and transient. Researchers claimed that low back pain after spinal anaesthesia might be due to localized trauma, leading to aseptic periostitis, tendonitis, inflammation of ligaments

and osteochondritis [12]. Factors associated with postoperative back pain include duration of postoperative immobilization, Position of the patient during spinal puncture and length of the time on operation table. Therefore postoperative pain thought to be the result of increased stress to the back ligaments (spinal ligaments) during the complex relaxation of the back muscles as well as prolonged bed rest [13].

Oblique paramedian approach to the spinal room was suggested to reduce the incidence of back pain [4]. Brattebo et al claimed that more than one puncture attempted did not increase the incidence of back pain while Wang et al reported that there is the significant association between post epidural back pain and multiple attempts of epidural needle placement [8]. Systemic NSAIDs have been used in prevention and treatment of back pain successfully, but NSAIDs on their own may also produce adverse side effects, such as gastric bleeding, renal impairment or increased bleeding caused by inhibition of platelet activities [7]. Wang and colleagues showed that prophylactic local administration of low dose NSAIDs reduced the incidence of back pain after epidural anaesthesia and prevented aseptic periostitis and inflammation of ligaments [8].

Wilkinson [11] mentioned that midline injection of large volumes of local anaesthesia causes distension of interspinous muscles and allows the spinous processes closer together due to this fact he recommended the use of field block anaesthesia to prevent post epidural back pain.

The field block anaesthetizes the recurrent spinal nerves, which innervate the interspinous ligaments and muscles. Peng et al showed that the use of field block anaesthesia prevented backache after lumbar puncture although this method could not prevent aseptic periostitis, inflammation of ligaments and osteochondritis. Peng showed that the use of “field block “technique decreased back pain from 13.9 to 5.5 %.Limitation of our study include the small sample size and the specific patient population evaluated, which consists of younger male patients. Therefore it is difficult to make generalization for all the patients undergoing spinal anaesthesia particularly for aged and female patients. Larger trials in different patient populations after different surgical procedures are needed to confirm our findings.

In conclusion, our study showed that local injection of lignocaine before spinal anaesthesia decreased the severity of low back pain following spinal anaesthesia, particularly in the early post-operative period. We recommended local addition of lignocaine before spinal anaesthesia.

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