SINGLE DOSE INTRATHECAL LIDOCAINE + MORPHINE AND LIDOCAINE ADMINISTRATION FOR POSTOPERATIVE PAIN RELIEF *

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SUMMARY
Postoperative pain relief by intrathecal morphine injection has proven to be successful in clinical practice. In this study, the analgesic effects of intrathecal injection of morphine and lidocaine were investigated. 50 patients were evaluated and half of them received morphine and lidocaine intrathecally and the others received lidocaine alone. The results revealed that the analgesic period of morphine + lidocaine group was much longer than lidocaine group.

Key Words: Intrathecal Lidocaine + Morphine; Lidocaine administration; Pain Pelief.

INTRODUCTION

The most important problem from the beginning of the surgical procedures is pain relief of the patients during postoperative period, because pain causes mobilization difficulties and respiratory distress. For this purpose, intrathecal administration of narcotic analgesics had been important after the discovery of opiate receptors in centrol nervous system in recent years. This study aimed to compare the effects of morphine + lidocaine and lidocaine alone, administered intrathecally for postoperative pain relief.

MATERIALS AND METHODS

The study included 50 patients, aged 17-83 years who had no contrindications for spinal anaesthesia, and 48 of them were male. Patients were separated into two groups, each including 25 patients, and lidocaine alone was administered to the first, and morphine + lidocaine to the second group.

All of the paients were checked up and interviewed for the procedure 24 hours before the operation. Informed consent was obtained from all of the patients. They were premedicated with atropine (0.50 mg, im) 30 - 45 minutes before the operation and they underwent different types of urologic procedures which could be performed under spinal anaesthesia.

On arrival in the operating theatre, 5% Dextrose infusion was begun through an iv catheter and control systolic blood pressure and heart rate were measured for each patient. After examining the lumbosacral x-rays and palpation of the patient, spinal anaesthesia was performed from L_{3-4} or L_{4-5} space with a 22G needle. In Group I spinal anaesthesia was performed by 120 - 140 mg of 2 % lidocaine solution alone. 120 - 140 mg of 2 % lidocaine solution and 1 mg of morphine sulfate which were prepared in different injectors, were given to Group II for spinal anaesthesia. Intrathecal injection time was accepted as the beginning of analgesia. All patients were taken care of in the recovery room after the operation until motor blockade ends. Postoperative pain was followed up by board nurses during routine board visits, as well as the blood pressure and heart rate for the first 24 hours after the operation. Board nurses did not have any idea about the patients' group. Their gradings for pain were adapted to McGill (1) pain scale of 0-5 degrees: no pain: 0, easy pain: 1, restlessness: 2, lightly severe pain: 3, severe pain: 4, intractable pain: 5.

The patients were warned to note the time that they felt pain or restlessness first. Analgesia period was accepted as the time between intrathecal injection and the time at which the patient felt pain first. Statistical analyses were by Student's t-test. Statistical differences were considered significant at $p < 0.05$.

RESULTS

25 patients in Group I who were given intrathecal lidocaine alone and another 25 patients in Group II who were given intrathecal morphine + lidocaine were included in our study. Systolic blood pressure variations for each group have been shown in Figure 1. In Group I, decreases in blood pressure were statistically significant at 10.,20., 30., 60., 90. minutes and 6., 8., 12., 20., 24., hours ($p < 0.05$). In Group II, dec-

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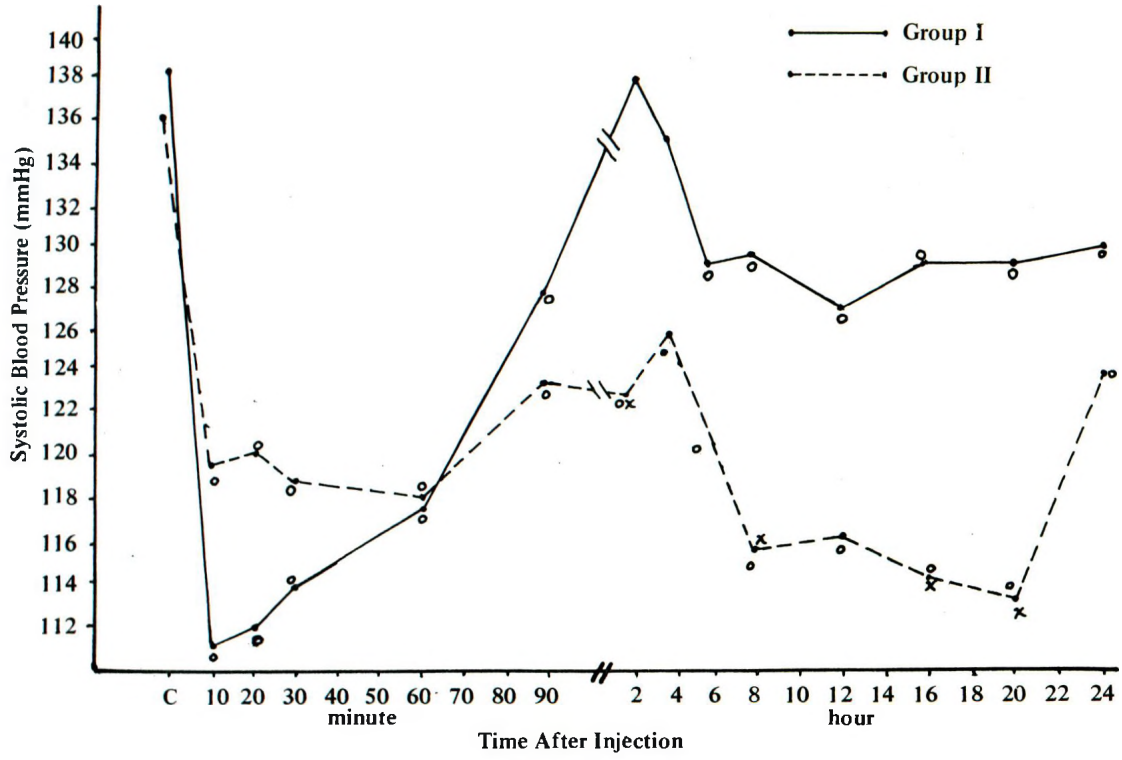

Fig 1. Variations of systolic blood pressure during 24 hour-observation period, after the intrathecal injection. "C" represents control values.
(0) significantly different than the corresponding control value ($p < 0.05$).
(x) significant difference between two groups ($p < 0.05$).

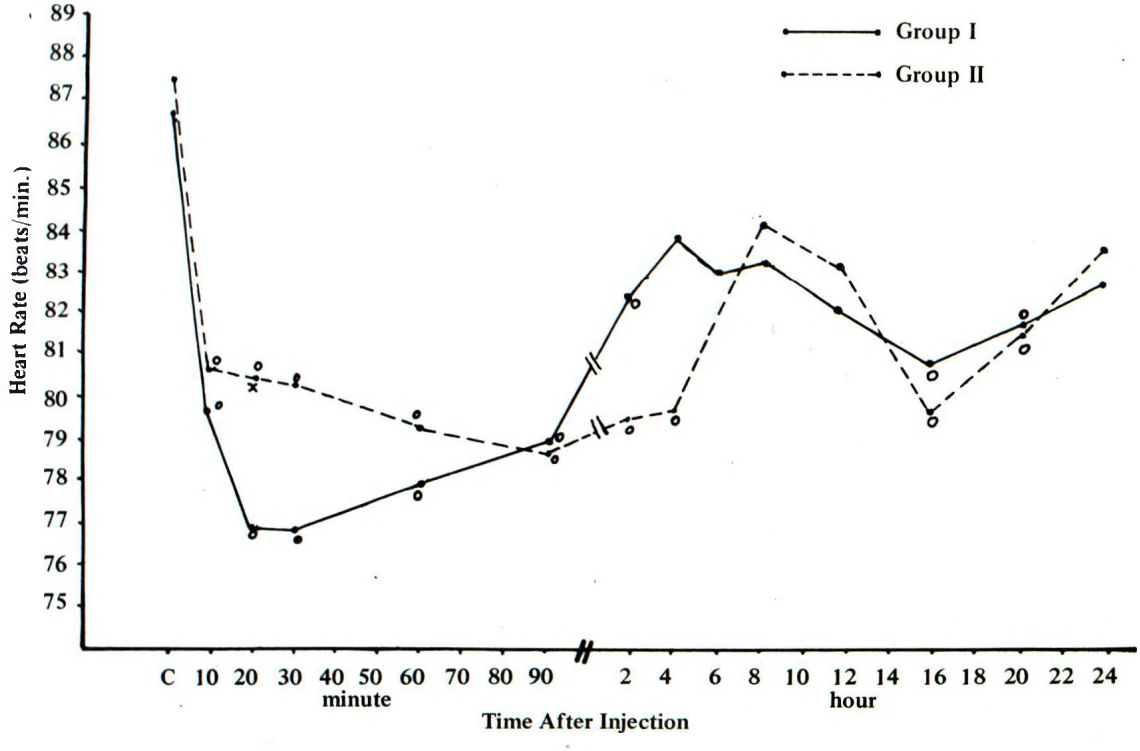

Fig 2. Variations of heart rate during 24 hour-observation period, after intrathecal injection.
"C" represents control value.
(0) significantly different than the corresponding control value ($p < 0.05$).
(x) significant difference between two groups ($p < 0.05$).

reases in blood pressure were found to be significantly different from the control value throughout the observation period of 24 hours. Between two groups, systolic blood pressure variations were statistically significant at 2., 8., 16. and 20. hours ($p < 0.05$). Figure 2 shows variations of heart rate for each group. In Group I, decreases in heart rate were statistically significant at 10., 20., 30., 60., 90. minutes and 2., 16., 20. hours ($p < 0.05$). In Group II, they were statistically significant at 10., 20., 30., 60., 90. minutes and 2., 4., 16. and 20. hours ($p < 0.05$). Comparison of heart rate between two groups shows that variation was statistically significant just at 20. minute ($p < 0.0.5$).

In Group I, mean postoperative analgesia period was 6.28 ± 1.38 hours, and it was 22.28 ± 0.79 hours in Group II (Figure 3). Statistical analysis of these values showed that postoperative analgesia period was significantly longer in Group II ($p < 0.001$).

In Group I, just 3 patients didn't have pain during first 24 hours. In this group, 18 patients' pain began between 2.-5. hours and 4 patients' between 6.-10. hours. Pain felt by 5 patients in this group was of degree 2,12 patients of degree 3,2 patients of degree 4 and 3 patients of degree 5, according to McGill pain scale. In Group II, 19 of 25 patients had no pain during postoperative first 24 hours. one patient began to feel postoperative pain at 8. hour, one at 14. hour, one at 16. hour, one at 19. hour and two at 22. hour, and all of these 6 patients felt pain of degree 2 (Table I).

Table I. Gradings of pain according to McGill Pain Scale.

Pain score (degrees)		0	1	2	3	4	5
n	Group I	3	0	5	12	2	3
	Group II	19	0	6	0	0	0

In Group I, none of the patients had problem with blood pressure or heart rate. In Group II, only two patients had severe hypotensikon, as a complication, during or after spinal anaesthesia. A vasopressor drug, ephedrine, was used intravenously to treat hypotension for both of them.

In Group II ,5 of the patients had nausea and one of them vomitted, and 17 of them had itching which began from the tip of the nose and spreaded toface, shoulders and back. This complaint was seen 3 - 4 hours after the intrathecal injection and continued for 3 - 8 hours. They all improved spontaneously. None of the patients in Group I had such kinds of complaints.

Spinal anaesthesia ensured satisfactory surgical analgesia in both groups, and we did not have to use any supplementary analgesic drugs or techniques. None of the patients had specific spinal anaesthesia complications.

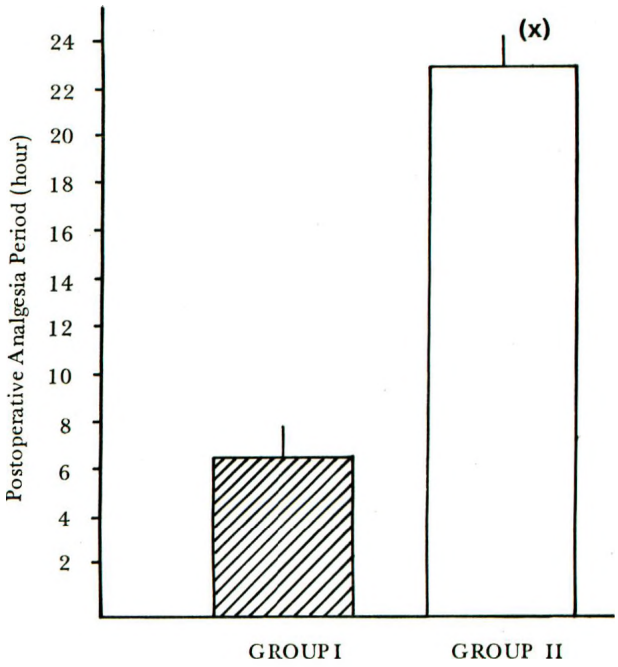

Fig 3. Postoperative analgesia period observed in both groups.
(x) significantly different than that of Group I ($p < 0.001$).

DISCUSSION

In our study, we tried to indicate the effects of morphine, administered with lidocaine intrathecally, on postoperative pain relief and to point out side effects.

Even though 6 of 25 patients in morphine group needed supplementary analgesics, in Group I 22 patients, which was given lidocaine alone intrathecally, needed supplementary analgesics. On the other hand, the patients who had pain in Group II were just in degree 2, according to McGill pain scale. This grading was varied between 2 and 5 degrees in Group I. It is known that intrathecal administration of narcotic analgesics, especially morphine, had been investigated by many authors in recent years. For example, in 1979, Wang, Naus and Thomas (2) reported similar results to ours, that they gave morphine (0.5 - 1 mg) intrathecally and got a 20 hour - postoperative painless period. In another study, Davies et al. (3) used 1 mg of morphine intrathecally and they found the same analgesia period.

In 1981, Gjessing and Tomlin (4) used different doses of morphine (0.8 - 2 mg) at a group of patients. 13 patients who have had cholecystectomy did not have pain during first 24 hours, and another 19 patients who have had total hip replacement had

22 hours analgesia period, being in line with our study.

Nelson and Katz (5) used 0.5 mg of morphine intrathecally at a group of patients who would have inguinal hernie repairment, and compared the analgesia with control group. Their resilts were similar to ours. While analgesia period in morphine group was 24 hours, they observed that pain has begun by the end of spinal aanaesthesia in control group in which they used local anaesthetic alone.

Also, in 1983, Kalso (6) used 0.2 - 0.4 mg of morphine intrathecally at 30 patients who would undergo orthopaedical procedures. In his study, he indicated supplementary analgesic requirment and pain score (Visual Analoque Scale). Consequently, he found that morphine group had certain superiority to control group.

As mentioned above, all of these studies corroborate our results, while some of them have some disparities because of the methodological defferences. We conclude that, the analgesic period of morphine group was mush longer and satisfactory than lidocaine group.

This study thus suggests that 1 mg morphine Provides postoperative analgesia which is of excellent quality and besides lasting longer than that provided by local anaesthetic solution is devoid of adverse side effects. While the advantages of intrathecal morphine administration in anaesthesia seem significant and the possible applications of the technique great, it is advisable that intrathecal morphine analgesia should be reserved for institutions where close, continual surveillance of patikents is possible, because of its potential respiratory depression effect.

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