International J. of Healthcare & Biomedical Research, Volume: 1, Issue: 2, January 2013, P: 48-52

"Epidural Tramadol for post operative analgesia"

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Abstract:

Background: Tramadol is mixed with Lignocaine 1.5% given epidurally for postoperative analgesia. We compared Tramadol with plain Lignocaine for postoperative analgesia.

Method: Sixty ASA I and II patients scheduled for elective surgery below the umbilicus were divided into two equal groups in a randomized, double blinded fashion. Control Group received Lignocaine 1.5% 25 cc and Study Group received Lignocaine 1.5% 25 cc and Tramadol 50 mg epidurally. Onset time of analgesia and motor block, duration of analgesia were studied in both the groups.

Result: Onset of time for analgesia and motor block was 5.5 ± 2.09 minutes and 9.13 ± 2.52 minutes in control group and it was 6.43 ± 1.90 minutes and 12.33 ± 3.20 minutes in study group respectively. The difference in the time taken for onset of analgesia was statistically insignificant (P>0.05). The difference in the time taken for motor blockade was statistically significant (P<0.05). The mean duration of analgesia in control group was 2.2 ± 0.5 hours and in study group was 6.55 ± 1.23 hours.

Conclusion: The duration of analgesia in the study group was found to be highly significant (P<0.05).

Introduction: All the time Pain is unpleasant sensory and emotional experience associated with actual or potential tissue damage. Often the patients may fear of an operation mainly due to pain that follows rather than the mortal risks of operation itself.

The site of operation is by far the most important single factor in determining the likelihood and probable severity of postoperative pain.The pain relief is necessary on humanitarian grounds as well as some therapeutic reasons as respiratory complications, nausea and vomiting and increased metabolism with oxygen consumption. The postoperative pain can be relieved by various means as regional blocks, systemic medication and epidural analgesics is one of the safe for analgesia mainly upper abdominal, lower abdominal and orthopaedic procedures. Tramadol is centrally acting opioid antagonist acting via opioid receptors. It also inhibits nor-adrenaline and 5-hydroxytryptamine neural uptake and facilitates its release and produces pain relief. The present study was undertaken to evaluate the efficacy of Epidural Tramadol for postoperative analgesia as it is safe and effective technique quoted by many workers.

Study design:

Sixty patients of ASA grade I & II between 18-65 tears of age of either sex undergoing elective or emergency surgical procedures below umbilicus were selected. These patients were randomly divided into two equal groups of 30 patients each.

All these patients were evaluated preoperatively for fitness of anaesthesia. The patients with morbid respiratory, cardiovascular diseases and extremes of age were excluded from the study. These patients were explained about regional technique of anaesthesia and pain assessment on Visual Analogue Scale. No premedication was administered to any patient. On operation table all vital parameters were noted. As usual epidural block was performed by loss of resistance technique in left lateral position in all patients. A test dose of

2-3 ml of 1.5% Lignocaine with adrenaline was injected in epidural space. Finally total dose of 25ml of 1.5% lignocaine with adrenaline was injected in control group and additional 50mg Tramadol with lignocaine was injected in study group.

After administration of the drug all patients were given supine position on horizontal table. The onset of sensory and motor blockade was noted. Intraoperatively vital parameters were noted. The duration of analgesia was calculated as time from administration of drug to the time required for demand of analgesics postoperatively. The degree of pain relief and side effects were observed in all patients intraoperatively as well as postoperatively. The patients with inadequate epidural block from the beginning were not included for observations. All the observations were statistically evaluated by unpaired "t'' test.

OBSERVATIONS:

Sixty patients of either sex with age range of 18-65 years requiring operative procedures below umbilicus of general surgery or orthopaedics were selected. The age range in both groups was comparable. The sex distribution was also comparable in both groups. The height of patient was in the range of 150-155cms. Out of 30 patients of control group in 5 patients lower abdominal surgery and in 25 patients orthopaedic surgery was performed. In study group in 4 patients lower abdominal and in 26 orthopaedic procedures were performed.

In control group, the onset of analgesia was within 4 minutes in 9 patients (30%), 4-5 minutes in 15 patients (50%) and 5-6 minutes in 2 patients (6%) and more than 9 minutes in 4 patients (13,33%) Mean onset of analgesia was 5.5 ± 2.09 minutes. In study group time for onset of analgesia was within 4 minutes in 4 patients (13.33%), 4-5 minutes 9 patients (30%), 5-6 minutes in 3 patients (10%), 6-7 minutes in 6 patients (20%), 7-8 minutes in 4 patients (13.33%) and more than 9 minutes in 4 patients (13.33%). The mean time for onset of analgesia in study group was 6.43± 1.90 minutes. This difference was not stastically significant where ($P > 0,05$; $t = 1.80$).

The onset of motor blockade in control group was observed to be in 6 minutes in 4 (13.33%) patients, 7 minutes in 4 (13.33%), 8 minutes in 7 (23.33%), 9 minutes in 1(3.33%), 10 minutes in 10 (33.33%) patients and rest of patients required more than 10 minutes. The mean time for onset of motor blockade was 9.13±2.52 minutes. The onset of motor blockade in study group was observed as 8 minutes in 4 (13.33%) patients, 10 minutes in 12 (40%) patients, 11 minutes in 1 (3.33%), 12 minutes in 8 (26.66%) and about 15 minutes in 5 (16.66%) patients. The mean time required for onset of motor blockade in study group was 12.33±3.20 minutes. This difference in two groups was found to be statistically significant ($P<0.05$, $t=4.13$).

The postoperative pain was assessed with Visual Analogue Scale from 0 hours to 7 hours and marks were given, 0 as no pain, 2, 3, so on up to 10 according to severity of pain. It was observed that there was no pain in any patient of study group up to 3 hours and pain started after 4 hours. In control group pain was observed after 1.5 hours and was severe after 3 hours. Thus there was some pain relief up to 3 – 4 hours as compared to control group.The duration of analgesia in control group was up to 2 hours in 14 patients (46.66%), 2.5 hours in 16 patients (53.33%). The mean duration of analgesia in control group was 2.20 ± 0.5 hours. The duration of analgesia was up to 6 hours in 13 patients (43.33%), up to 7 hours in 14 (46.33%) and up to 8, 9, and 11 hours in 1 patient (3.33%). The mean duration of analgesia in study group was 6.55 ± 1.23 hours. The duration of analgesia in study group was highly significant ($p < 0.01$; $t = 29.16$).

Intraoperatively all vital parameters as pulse rate,

systolic and diastolic blood pressure and respiratory rate very stable and comparable in both groups in all patients at all-time intervals.The incidence of intraoperative as well as postoperative related complications was negligible in both groups. No patient had dreadful complications during the study.

Discussion:

Epidural block with pharmacological drugs is a safe and common method for postoperative pain relief. The drug introduced in epidural space traverses to subarachnoid space through intervertebral foramina. Tramadol is centrally acting analgesic introduced in 1977. It acts on opioid receptors and its analgesic potency is 5-10 times less than morphine. It has low preferential activity at μ receptors and also inhibits both nor-adrenaline and 5-hydroxytryptamine. The dose of Tramadol depends on the intensity of pain and the sensitivity of individual patient. Tramadol can be given by all routes and preservative free for intrathecal or epidural use.

Fu Y P et al (1991) observed significant pain relief and less side effects with Tramadol 50 mg – 75 mg dose, our observations coincide with his observations. Inturi et al (1996), Pan V.K. et al (1997), Lakhotiya et al (1998), Delkian et al (1993), Baraka et al (1993), Rawal et al (1995) have also assessed pain relief with visual analogue scale and observed that epidural Tramadol along with Lignocaine gives postoperative pain relief for 7-8 hours without any complications. They have explained their observations that Tramadol acts centrally through spinal receptors which can be applicable for present study.

Traditionally pain is evaluated as no pain, mild, moderate or severe pain but it differs from person to person and also governed by many factors. A more sophisticated method to measure the pathological pain known as Visual analogue Scale. The reliability of linear analogue scale depends upon the visual and motor co-ordination and patient's intellectual level. It is graded as '0' to '10' according to severity of pain. According to linear analogue scale in study group pain group was observed in more number of patients for 6-7 hours as compared to control group where pain relief was only 3-4 hours in maximum number of patients. Our observations coincide with the observations of Fu Y P et al (1991), Delikan et al (1993), Baraka et al (1993), Rawal et al (1995) and Inturi et al (1996). Their observations were explained on the basis pharmacological action of Tramadol which are applicable to our observations.

All above workers have not observed any changes in the vital parameters Intraoperatively as well as in postoperative period. In present study also we have not noted any changes in vital parameters as pulse rate, blood pressure (systolic and diastolic) and respiratory rate throughout procedure. Again there were no dreadful complications in any patient intraoperatively as well as postoperatively.

Conclusions: This technique is easily accepted by the patients without any dreadful intraoperative and postoperative side effects.

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Tables: Table No.1 Showing Visual Analogue Scale

Time in Hours	Mean VAS pain Score	
	Control group	Study group
1	0	0
1.5	0.73	0
2	3.86	0
2.5	5.62	0
3	--	0
4	--	0.1
5	--	2.03
6	--	2.66
7	--	4.23

Table No. 2 Showing Duration of Analgesia

Duration in hours	Control group		Study group	
	No. of Patients	Percentage	No. of Patients	Percentage
2	14	46.66	--	--
2.5	16	53.33	--	--
More than 2.5	0	00	--	--
3	--	--	--	--
4	--	--	--	--
5	--	--	--	--
6	--	--	--	--
6.5	--	--	13	43.33
7	--	--	14	46.33
8	--	--	1	3.33
9	--	--	1	3.33
11	--	--	1	3.33

Manuscript submission: 02 December 2012
Peer review approval: 09 December 2012
Final Proof approval: 28 December 2012
Date of Publication: 05 January 2013
Source of support: Nil Conflict of Interest: Nil