

*Original Article***EPIDURAL TRAMADOL FOR CANCER PAIN:
A COMPARISON WITH EPIDURAL FENTANYL****DRB Rana^a****Background**

Effective pain control is essential for optimal care in cancer patients. However, despite advances in the knowledge of Pathophysiology of pain and more effective techniques, patients continue to suffer considerable pain in many cancer situations especially in terminal stages. A multidisciplinary approach is always necessary and is encouraged for optimum pain control and should be approached. This study is an attempt to find out the efficacy of analgesic property of tramadol through epidural route in cancerous patients with pain. Addition of low dose bupivacaine was used in both the groups in an attempt to get a synergistic effect. A comparison was made with fentanyl, which is used widely and effectively in many painful situations.

Methods

Fifty cancer patient with or without previous pain management were randomly allocated to one of the two study regime. Group A (tramadol 50 mg) and group B (fentanyl 50 micrograms) with bupivacaine 0.125% were given through epidural route 6-hourly for the first day, 8-hourly on second day and 12-hourly on third day. Pain scores, blood pressure, respiratory rate, side

effects and satisfaction were recorded 6-hourly for 72 hours.

Results

Pain scores were significantly decreased in both the groups. However, there was no significant difference between the groups. Changes in mean arterial pressure and heart rate were found in both the groups with no statistical significance. Decrease in respiratory rate (RR) following third dose through last dose were found significantly different between the two groups.

The incidence of side effects like nausea, vomiting, pruritus and constipation were not significantly different between the two groups. Sedation and satisfaction were also not significantly different between the two groups.

Conclusion

The use of epidural tramadol in carefully selected cancer patients may be very useful when other alternatives like preservative free narcotics are beyond the reach due to various reasons.

Keywords

Epidural route, visual analogue scale, cancer pain, tramadol, fentanyl.

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The number of cancer patients in the world is increasing. Of the estimated nine million new cancer cases every year, more than half is in developing countries. The majority of these patients are incurable by the time their disease is diagnosed¹. Cancer pain is a dreadful condition, which makes the life of a patient miserable. Cancer pain gives physical and psychological disturbances and cripples them. Furthermore, cancer pain decreases the survival of the patient, steals away the comfort and dramatically reduces the productivity. Many epidemiological surveys have concluded that approximately 25% of patients with localized disease report pain and that the prevalence of pain can be as high as 90% in advanced cancer². Therefore, one of the aims of cancer treatment is to relieve the pain to the patient's satisfaction so that their function improve and die free of pain.

Epidural fentanyl for analgesia is an established opioid with a short onset of action about 5 minutes and lasting for about 2-4 hours with bolus of 25-100 micrograms when used alone. When added to 0.125% bupivacaine small dose of fentanyl will have better pain relief for longer period. But lack of easy availability (enlisted as controlled drug), lack of trained nursing staff and intolerable established side effects of fentanyl like respiratory depression³, an attempt was made in this study to find out a relatively safer alternative drug using *tramadol*. In this study, analgesic efficacy of 'tramadol' is compared with 'fentanyl' through the epidural

route. Bupivacaine 0.125% was added to both the drugs. This study was carried on patients of both sexes having pain due to cancer of different organs (table 1).

Table 1: Distribution of cancers between two groups.

Organ involved	Group A	Group B
Uterine cervix	8	11
Rectum	6	6
Urinary bladder	3	3
Lung	2	0
Ovary	2	3
Pancreas	2	2
Gall bladder	1	0
Squamous cell carcinoma skin	1	0

Methods

This single blind prospective study was performed after obtaining the permission from the department of Anesthesia, analgesia & Intensive Care Medicine, BSSMU and the informed written consent of the patient. Fifty-five patients with cancer pain of various organs (table 1) were taken in this study. However, five cases were excluded from study for different reason. Patients not willing to accept the protocol or denial of written informed consents, presence of infection on epidural site, bleeding diathesis, younger than 18 years, patient taking MAO inhibitors & history of epilepsy and bed ridden patients were excluded from the study.

Prior to study, all patients underwent a full physical examination and were familiarized to the 'Visual Analogue Scale' (VAS) that would be used for the assessment of pain intensity later during the study period.

Epidural Catheterization Technique

Under full aseptic care, epidural needle (Tuohy 18 G) was inserted carefully into the predetermined epidural space. The epidural space was identified by the loss-of-resistance technique. Aspiration tests for blood and cerebrospinal fluid (CSF) were performed. Calculated length of epidural catheter (20 G) was then inserted through the needle into the epidural space. Then the needle was removed carefully and the catheter then fixed by tunneling technique. A test dose of 3 ml of 2% lidocaine with adrenaline 1:200,000 was pushed to confirm the catheter tip in the epidural space and to exclude spinal insertion. Lack of heart rate increase by 20% within a minute excluded intravascular catheter insertion and lack of signs of spinal anesthesia within 3 minutes excluded spinal insertion of catheter. This procedure was carried in the operation theatre where standard monitoring facilities and emergency facilities were readily available. After the procedure, patients were shifted to the high dependency unit (HDU) during the study period for proper management of any adverse effect of study drugs.

Group A was given ‘tramadol 50 mg’ in 0.125% bupivacaine (about 1 ml/segment) and group B was given ‘fentanyl 50 microgram’ in 0.125% bupivacaine (about 1 ml/segment). Odd number patients received group A regime and even number patient received group B regime. All patients of both groups were also given tramadol 50 mg 6 hourly per oral along with the study regime.

In the high dependency unit pain scores (VAS and VRS), non-invasive blood pressures,

respiratory rates, and heart rates, were recorded at 0 hours (before starting study drugs), and six hourly intervals for 72 hours. To measure pain intensity a standard VAS scale measuring 0-10 cm was used. “0” meaning no pain and “10” being the maximum imaginable pain. VRS was determined using the following scale: 0 = no pain, 1 = mild pain, 2 = moderate pain, and 3 = severe pain. Heart rate and respiratory rate were recorded in per minute basis. Non-invasive blood pressure was recorded as mean arterial pressure (MAP). Level of sedations and satisfaction were also recorded. Level of sedation was recorded as awake and alert, awake but drowsy, asleep but easily arousable, asleep but difficult to arouse, and unresponsive. Sensory effect and motor effect if any were recorded according to the **Bromage scale**. Side effects like nausea, vomiting, pruritus, constipation, urinary retention were also recorded.

Table 2: Patient characteristics
(N = 25 each group):

Parameter	Mean ± SEM		P value
	Group A	Group B	
Age (yr)	45.78 ± 1.78	44.48 ± 2.18	0.72
Weight (kg)	48.42 ± 1.17	48.92 ± 1.45	0.79
Height (cm)	161.6 ± 2.47	160 ± 1.82	0.37
Sex (M:F)	1.08:1	0.86:1	

VAS, VRS, MAP, HR and RR were analyzed using the two sample test and repeated

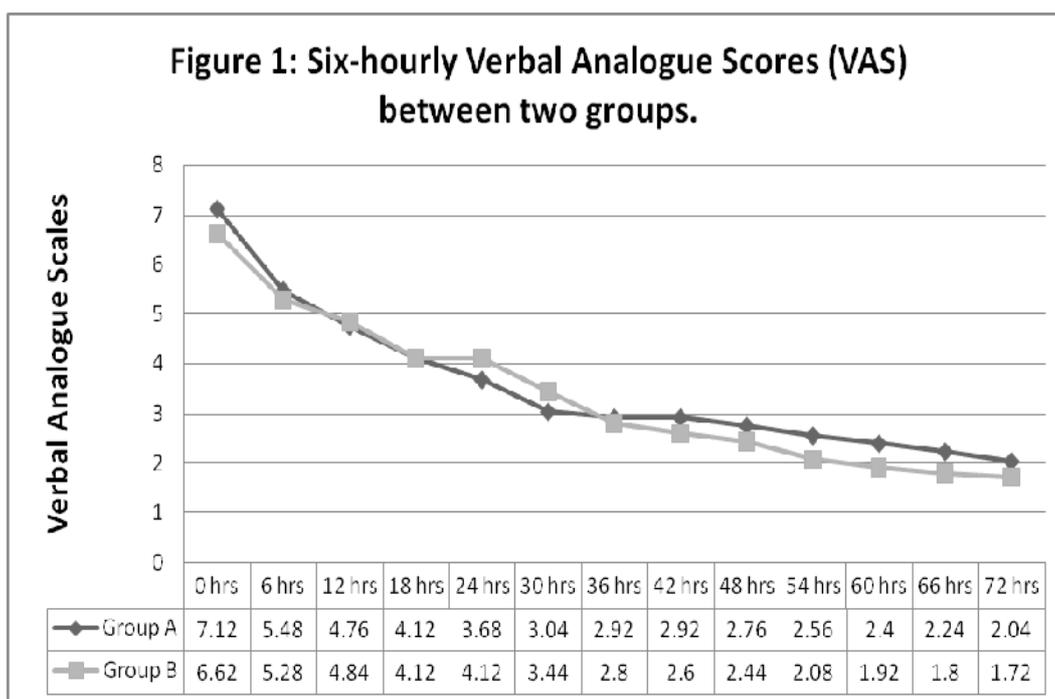
measures analysis of variance (RM-ANOVA) to detect the difference over time. Chi-square test was also used for statistical significance for side effects and satisfaction. Results are presented as mean and statistical significance was defined as $P < 0.05$.

Results

Patient characteristics were similar in two study groups (table 2). The mean values of initial VAS were comparable without statistical significance. In both the groups

VAS scores continually decreased following the administration of study drugs throughout the study period (figure 1). There was no

statistical difference between the two groups of 6-hourly interval in VAS. However, there was significant difference between the initial VAS and subsequent VAS within the groups. Verbal rating scores (VRS) in both the groups were also comparable with no statistical significance in the beginning (figure 2).



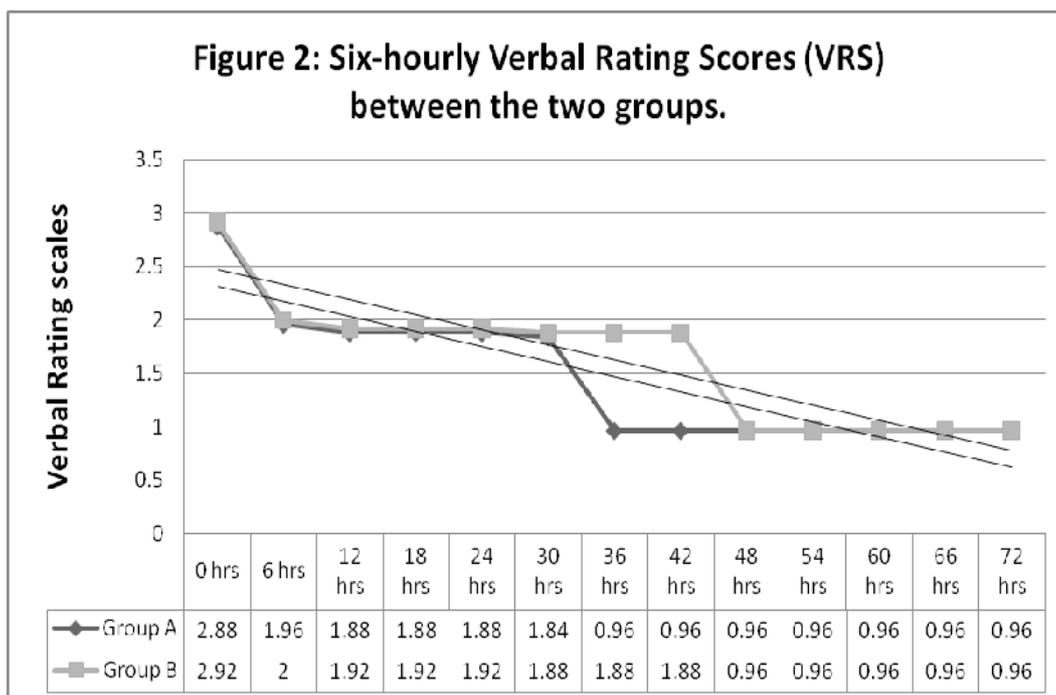
Discussion

Tramadol is a centrally acting analgesic with two distinct mechanisms of action. It binds opioids receptors weakly and inhibits the reuptake of norepinephrine and serotonin in

the spinal cord^{4, 5}. The drug has a terminal elimination half-life of 5.5 h and provides clinical analgesia for 4-6 h after parenteral administration and for 10 h after epidural administration⁶. Epidural tramadol has

been demonstrated to provide adequate postoperative analgesia after major abdominal and Caesarean section^{7,8}. Not many studies have come out regarding epidural tramadol for pain management and

none on cancer pain management. Many of the studies are targeted towards post-operative pain management. All of them have encouraging results.



Chrubasi and Magora⁹, compared 100 mg tramadol with 3 mg of morphine epidurally and found to be equianalgesic. Baraka et al¹⁰ compared 100 mg tramadol and lignocaine with 4 mg of morphine and lignocaine for post operative analgesia. The number of the patients was only 20 (10 in each group). Analgesia was equally effective and long lasting in both the groups.

Delikan AE et al¹¹ compared epidural tramadol 50mg, tramadol 100mg and bupivacaine 0.25% for postoperative pain. The entire study regimes were significantly

effective to relieve the pain. Tramadol 100mg produced more relief of pain than other two, which was statistically significant (P <0.05). Their VAS score was 7.4 before starting the drug in group B (tramadol 100mg) which came down to 2.3 by 24 hours. The dose was not required before 6 hours in many patients, but some of them required one or two doses in 24 hours.

In our study both the groups had similar VAS scores at 0 hour and were not significantly different statistically (figure 1). There was significant decrease of VAS in within the

groups, which was statistically significant (P0.00). Although VAS decreased in both the groups, there was no significant difference between the groups. The VRS responses to the study drugs were similar to the VAS

response in both the groups (figure 2). Overall decrease in VAS score was statistically significant in both the groups with '0' hours of both group.

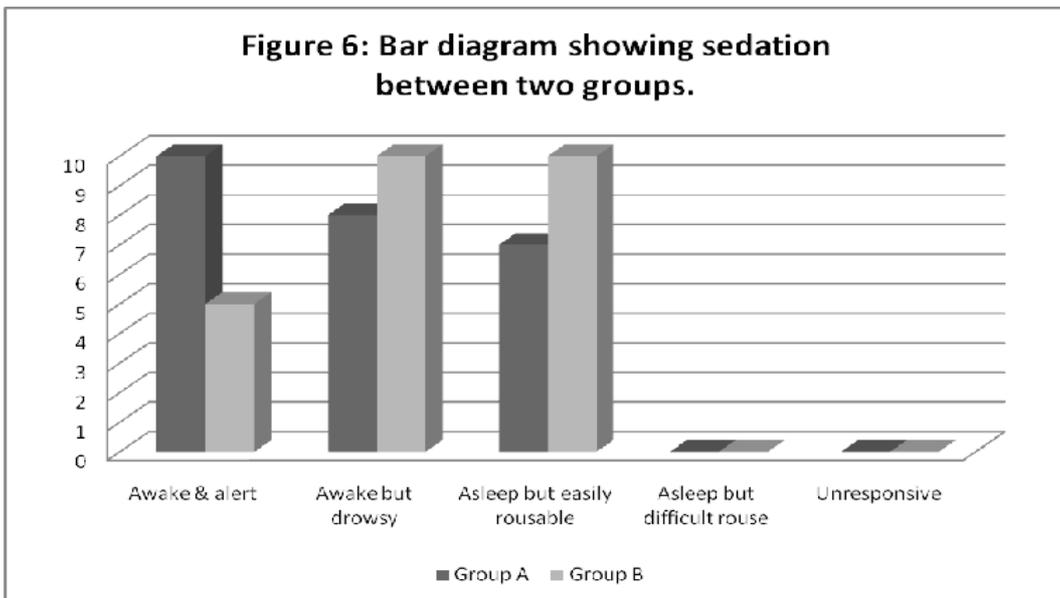
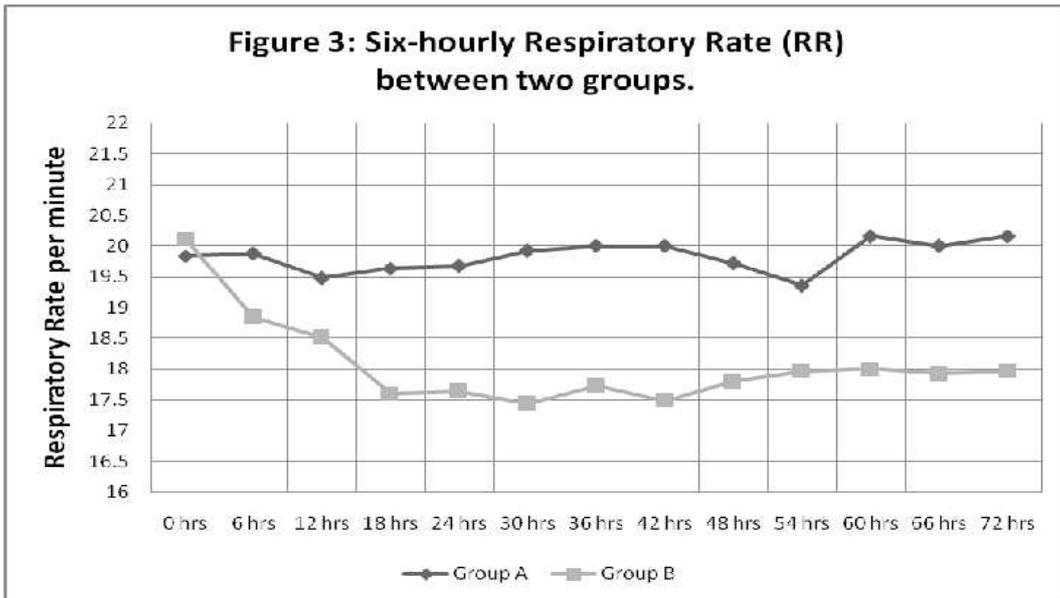


Figure 5: Six-hourly Mean Arterial Pressure (MAP) between two groups.

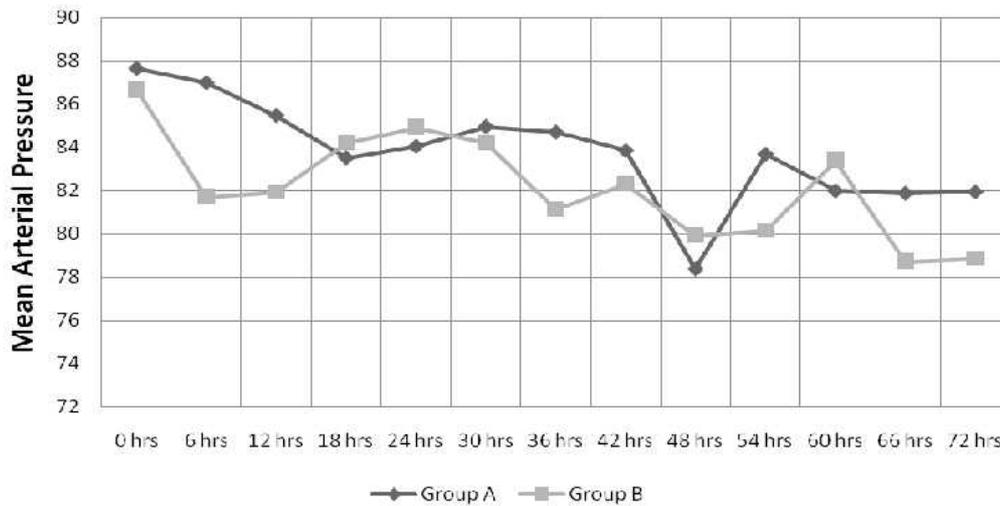
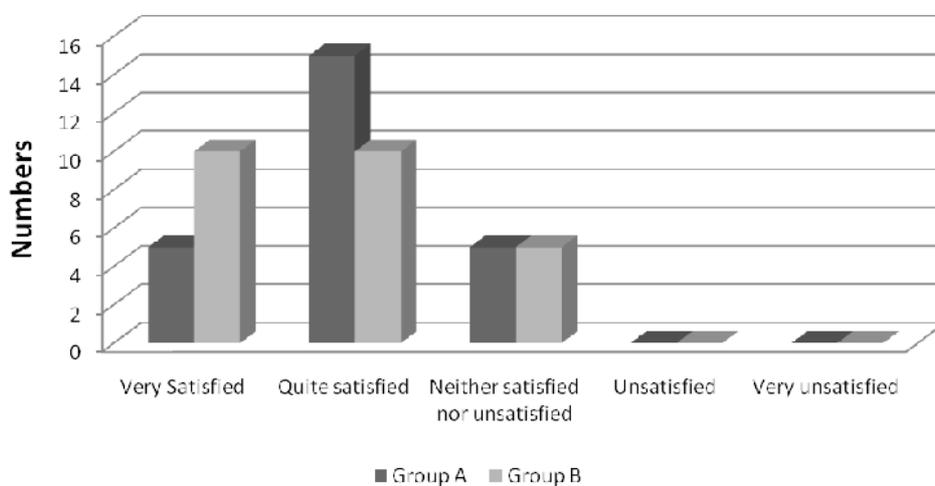
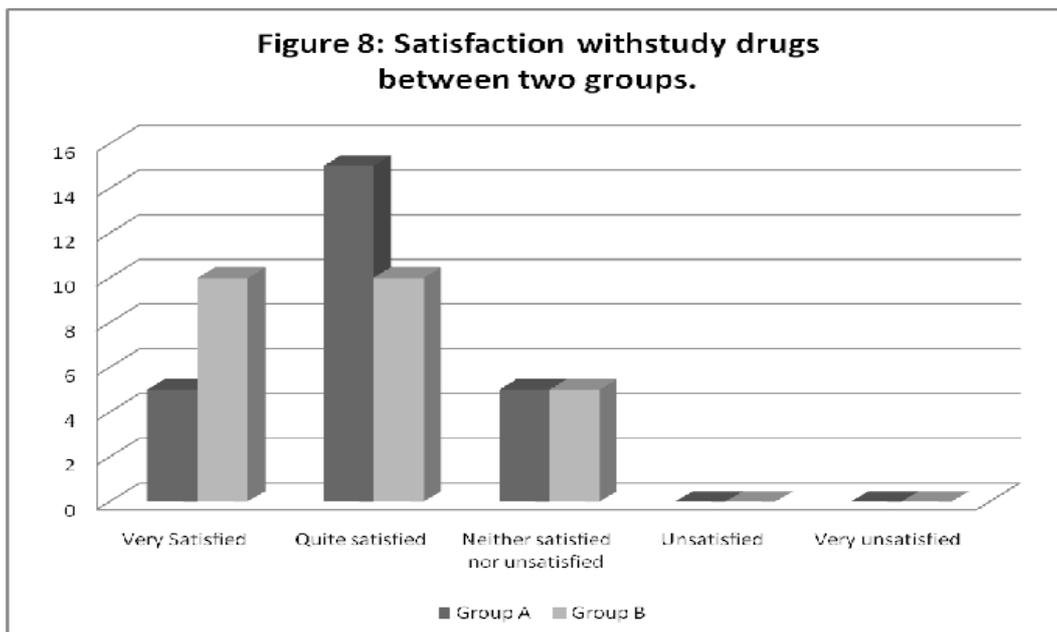
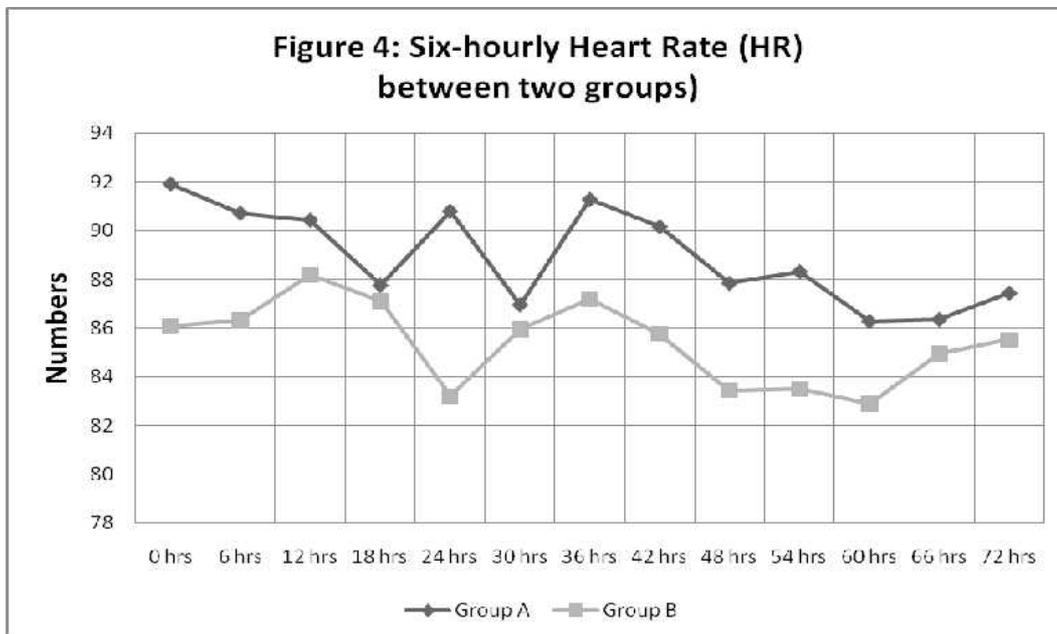


Figure 7: Bars showing Satisfaction between the Groups





This significant analgesic effect even with 50mg tramadol may be due to synergistic effect achieved by the addition of 0.125% bupivacaine. Moreover, the 6 hourly dose schedule given for the first day gave significant pain relief.

Many studies have been made to see the respiratory effect of tramadol like respiratory rate, end tidal CO₂ and peripheral arterial oxygen saturation. All available studies failed to demonstrate respiratory depression in any range of clinical dose of tramadol through any route.

Delikan AE et al¹¹ did not find any respiratory depression effect with either of the tramadol doses.

M D Vickers et al¹² conducted a study on tramadol giving emphasis on its respiratory depression effect. They compared morphine (0.143mg/kg iv) with three different doses of tramadol (0.5mg, 1mg and 2mg/kg iv) in lower abdomen postoperative patients. The study showed that increasing dose of tramadol was responsible for decrease in respiratory rate. Nevertheless, respiratory rate decrease by the maximum dose of tramadol was less than that of morphine. It was statistically significant between tramadol 3mg/kg and morphine 0.143 mg/kg.

In our study only respiratory rate (RR) was compared. There was no significant difference between the two groups at 0 hour. Following the intervention of the study drugs, the RR was relatively constant in group A, but the RR was decreased in group B. The decrease in RR obtained after third dose till last dose between two groups were statistically significant (figure 3). The preservation of the RR on tramadol group may be attributed to its analgesic effect by other than μ agonist activity.

Hemodynamic parameters like arterial blood pressure and heart rate were comparable before and after intervention of study drugs between the groups (figure 4 & 5).

Side effects like nausea, vomiting, pruritus, constipation were also recorded in few cases in both the groups and were comparable with no statistical differences (figure 6).

Sedation records after intervention of the study drugs were found no statistical difference (figure 7).

Satisfaction with the study drugs were compared and found statistically insignificant (figure 8).

Limitations

- Study duration of three days,
- Single blinded, and
- Heterogenic group of patients.

Conclusion

Epidural tramadol may be a suitable alternative over other preservative free opioids in carefully selected cancer patient when respiratory depression is concerned. Furthermore, easy availability at cheaper price and safety in institute with limited well-trained manpower are other attractions for the use of tramadol.

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*Original Article***LOW VISION CARE FACTS AND FIGURES IN A TERTIARY LEVEL EYE HOSPITAL IN WESTERN REGION OF NEPAL****RRajesh Pradhan*, Anita Ale******Abstract****Background**

The global prevalence of low vision is estimated to be 68 million. No such facts or figures are as yet available for Nepal.

Aims

To evaluate the important causes of low vision, demographic distribution of low vision, status of low vision care and utilization of services.

Methods

Retrospective case study of patients attending low vision clinic. Detailed clinical examination and low vision assessment was done.

Results

Among 138 low vision patients, male female ratio was 1.2:1. The mean age of the patient was 15 years and 90.1% of patients were below 30 years. Among the clients, 66% were students. The most common causes of low vision were surgical aphakia/pseudophakia with amblyopia (21%), refractive error and amblyopia (14.5%) and optic nerve disorders (8.7%). Visual improvement with optical LVDs was particularly beneficial for near tasks.

Conclusion

Majority of low vision clients were young people and the most important cause being lens related like surgical aphakia/pseudophakia which should not be overlooked. Low vision problems in the region and Nepal can be avoided by improving eye care services; starting from development of trained manpower, proper management protocols, continuing medical education programs, community eye health programs, timely referral and proper management.

Keywords

BCVA- Best corrected visual acuity, LVDs- Low vision devices

Introduction

Functional definition of low vision is; "A person with low vision is one who has impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception in the better eye, or a visual field less than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for the planning and/or execution of a task."²

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