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TO COMPARE ANALGESIC EFFECT OF TWO DIFFERENT DOSES OF ORAL PREGABALIN AS PREMEDICATION IN PATIENTS UNDERGOING ABDOMINAL HYSTERECTOMY UNDER SPINAL ANAESTHESIA

Anaesthesiology

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ABSTRACT

Background- In preemptive analgesia, the analgesic treatment is started before and is operational during the surgical procedure so that the physiological consequences of nociceptive transmission are reduced. Because of this protective effect on nociceptive pathways, preemptive analgesia decreases the incidence of hyperalgesia and allodynia after surgery.

Methods- This Hospital based, prospective, randomized, double blind, comparative study was conducted in Department of Anaesthesiology, Sawai Man Singh Medical College after obtaining approval from Institutional Ethics Committee and Research Review Board and written informed consent from all the patients.

Results- The mean duration of analgesic was 4.97 ± 2.98 hrs in group A after which first rescue analgesic was required in group A, 6.49±2.98 hrs in group B and 7.26±2.51 hrs in group C. The mean duration of analgesia after which second rescue analgesic was required was 9.77±1.95 hrs for group A, 13.36±5.21 hrs for group B and 13.13±4.15 hrs for group C. The mean duration of analgesia after which third rescue analgesic was required was 15.43±3.58 hrs for group A, 15.94±3.42 hrs for group B and 17.25±0.35 hrs for group C.

Conclusion- We conclude that pregabalin 75 mg is better drug for preemptive analgesia and it can be used safely as a part of multoimodal analgesia regimens.

KEYWORDS

Preemptive analgesia, Gabapentin, Rescue analgesic.

INTRODUCTION

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage[1] The World Health Organization and International Association for the Study of Pain have recognized pain relief as a fundamental human right.

Postoperative pain differs from other acute pains since it is expected and its cause is advance. Various factors also affects the degree of post-operative pain including the patient's previous experiences and mental preparation , intra-operative pain management, the nature and duration of surgery, the site and size of the incision and the extent of surgical trauma. Short incisions that remain within one dermatome are less painful than those that cross several nerve distributions.

In preemptive analgesia, the analgesic treatment is started before and is operational during the surgical procedure so that the physiological consequences of nociceptive transmission are reduced. Because of this protective effect on nociceptive pathways, preemptive analgesia decreases the incidence of hyperalgesia and allodynia after surgery.

Thereby preemptive analgesia reduces immediate postoperative pain and prevents the development of chronic pain. Preemptive analgesia helps to prevent the neurological and biochemical consequences of noxious input to central nervous system.[2]

At present, there are several drugs available that are being used as preemptive analgesic like local anesthetics, opioids, gabapentin, pregabalin, flupirtine, clonidine, MDA receptor antagonists and their combination (multimodal), in addition to non- steroid anti-inflammatory drugs (NSAIDs) can be used to minimise postoperative pain[3]

In view of the above observations, the present study was designed as prospective, randomized, double-blind to compare the efficacy of different doses of pregabalin as preemptive analgesics in abdominal hysterectomy under spinal anaesthesia.

MATERIAL AND METHODS

STUDY DESIGN: Hospital based double blind, randomized control study.

STUDY PERIOD: After approval of the Research Review Board from April 2016 till the desired sample size was completed.

SAMPLE SIZE: The sample size required is 45 in each group at 95% confidence and 80% power to verify the minimum expected difference of 0.50 (±0.76) in VAS at 30 min in all the 3 groups. This sample size is adequate to cover all the other study variables too.

SAMPLING TECHNIQUE: 135 eligible candidates were randomly allocated into 3 study groups using sealed envelope method.

STUDY UNIVERSE: Cases undergoing lower limb surgeries under spinal anaesthesia.

STUDY GROUPS: This study was conducted in the following three groups of patients. Each group consisted of 45 patients.
GROUP A (n=45): Patient received placcebo orally 1 hour prior to the administration of spinal anaesthesia using 20 mg of 0.5% bupivacaine heavy.

GROUP B (n=45): Patients received 75mg pregabalin orally 1 hour prior to the administration of spinal anaesthesia using 20 mg of 0.5 % bupivacaine heavy.

GROUP C (n=45): Patients received 150mg pregabalin orally 1 hour prior to the administration of spinal anaesthesia using 20 mg of 0.5 % bupivacaine heavy.

ELIGIBILITY CRITERIA

INCLUSION CRITERIA:-

- ASA grade I and II.
- Females between the age 45-65 years.
- Body mass index of 18-35kg per mtr sq.
- Scheduled to undergo elective abdominal hysterectomy.

EXCLUSION CRITERIA:-

- Refusal to participate in the study.
- Use of anti anxiety drugs.
- History of drug or alcohol abuse.
- History of epilepsy.
- Uncooperative patients.
- The patients with general contraindication for spinal anaesthesia like sepsis, bacteremia, skin infection at the site.
- Severe hypovolemia, increased intracranial pressure, coagulopathy.
- History of convulsion. allergy to the drug used. bleeding disorder, severe neurological deficit.

- Patients not willing to participate in the study.
- Patient with history of hypertension, respiratory, cardiac, hepatic or renal disease (necessitating classification in ASA Class Ill or above)
- History of chronic pain and headache, dizziness or significant post-operative nausea or vomiting after any previous surgery.

STATISTICALANALYSIS

Statistical analysis was performed with the SPSS, version 21 for Windows statistical software package (SPSS inc., Chicago, IL, USA). The Categorical data was presented as numbers (percent) and were compared among groups using Chi square test. The quantitative data was presented as mean and standard deviation and were compared bystudents t-test. Probability was considered to be significant if less than 0.05.

RESULTS

Table 1: Age Distribution

	Group A	Group B	Group C	Significance (P value)		
				A & B	B & C	A & C
Age (Mean±SD)	50.4±4.68	49.37±4.18	48.78±4.99	0.277	0.538	0.115
ASA I:II:III	0:45:0	3:42:0	9:35:1	0.67	0.521	0.58
Weight	60.29±7.18	58.47±8.58	57.76±8.65	0.27	0.11	0.13

Table 2: VAS

	Group A		Group B		Group C		Significance (P value)		
	Mean	SD	Mean	SD	Mean	SD	A & B	B & C	A & C
0 min	2.03	0.47	1.13	0.34	1.0	0.29	0.0003	0.507	0.0003
30 min.	2.05	0.52	1.14	0.58	1.0	0.52	0.0003	0.188	0.0004
60 min.	2.08	0.43	1.5	0.60	1.5	0.64	0.0004	0.733	0.0004
2 hrs.	2.26	0.65	1.95	0.63	1.8	0.77	0.0003	0.764	0.0001
6 hrs.	2.52	0.72	1.98	0.72	1.7	0.86	0.04	0.596	0.03
12 hrs.	2.83	0.72	2.1	0.65	2.1	0.83	0.02	0.323	0.04
24 hrs.	3	0.58	2	0.81	2	0.50	0.007	0.020	0.0003

Table 3: Time of Rescue Analgesic

	Group A		Group B		Group C		Significance (P value)		
	Mean	SD	Mean	SD	Mean	SD	A & B	B & C	A & C
1st rescue (hr)	4.62	1.92	6.40	2.97	6.60	2.79	0.001	0.754	0.0002
2nd rescue (hr)	9.33	1.48	13.75	5.31	12.47	4.62	0.0003	0.428	0.0002

Table 4: Rescue Analgesics

	Group A (N=45)		Group B (N=45)		Group C (N=45)		Significance (P value)		
	No.	%	No.	%	No.	%	A & B	B & C	A & C
0 dose	6	13.33	3	6.66	3	6.66	0.0003	0.212	0.0003
1 dose	15	33.33	9	20.0	8	17.77			
2 dose	16	35.55	8	17.77	8	17.77			
3 dose	30	66.66	7	15.55	2	4.44			
4 dose	4	8.88	1	2.22	1	2.22			
Mean±SD	2.73±0.78		1.60±0.99		1.36±0.86				

DISCUSSION

Management of pain in the postoperative period is a major concern. It has to be managed judiciously and adequately. Postoperative pain may delay recovery, increase hospital stay and patient's expenditure. Good analgesic techniques minimizes patient discomfort, facilitates early mobilization and discharge from hospital. It also prevents acute pain developing into chronic pain. Various drugs like opioids, NSAIDs, ketamine, gabapentinoids have been used in multimodal approaches to achieve adequate postoperative analgesia.[4]

Preemptive analgesia is a treatment that is initiated before surgery and thus it prevents establishment of the altered sensory processing resulting from surgical stimuli that amplifies postoperative pain. Various drugs either single or in combinations have been used as preemptive analgesics.[5]

The mean duration of analgesic was 4.97 ± 2.98 hrs in group A after which first rescue analgesic was required in group A, 6.49±2.98 hrs in group B and 7.26±2.51 hrs in group C.

The mean duration of analgesia after which second rescue analgesic was required was 9.77±1.95 hrs for group A, 13.36±5.21 hrs for group B and 13.13±4.15 hrs for group C.

The mean duration of analgesia after which third rescue analgesic was required was 15.43±3.58 hrs for group A, 15.94±3.42 hrs for group B and 17.25±0.35 hrs for group C.

This is highly significant between group A and B and Group A and C but not significant between Group B and C.

We observed that VAS score was significantly higher in group A as compared to group B and group C at all times. However the difference between VAS score of group B and group C was not significant.

The total requirement of rescue analgesics was more in group A, however, there was no significant difference between rescue analgesic requirements of group B and group C.

These findings are similar to Yucel A, Ozturk E et al (2011)[6]who compared effects of two different doses of pregabalin on morphine consumption and pain after abdominal hysterectomy. They observed that pregabalin group had significantly lower VAS score and higher patient satisfaction in the first postoperative 24hrs than the control group.

Our findings are also in accordance with Jokela et al[7] who evaluated quality of analgesia in women undergoing gynaecological laparoscopic surgery after premedication with pregabalin 75 or 150mg compared with diazepam 5mg. The median AUC values for VAS scores for pain at rest and in motion 1-8 hrs after surgery were lower in the P150 group than that in diazepam group.However, the amount of rescue analgesics or the degree of drowsiness did not differ in the 3 study groups.

Our results matched David M.H. Lam, Siu-Wai et al[8] who conducted a meta analysis showing that peri-operative administration of pregabalin significantly reduced VAS scores at 2hrs post- surgery in all surgical categories and at 24hrs post surgery in all surgical categories with the exception of cardiothoracic and spine procedures. Total morphine consumption at 24hrs post surgery was significantly reduced.

Our results were in accordance with the studies of Ittichai Kuthol W, Virankabutra T et al[9], in which peri- operative 300 mg pregabalin reduced opioid consumption, VNRS pain score and improved satisfaction score at 24hrs post-operatively without any significant difference in side effects.

Our results were in accordance with the studies of Anand Tipanna, Talikoti et al[10] in which 150mg pregabalin was compared with placebo as premptive analgesic in patients undergoing lower limb ortho surgeries. Time of rescue analgesia was significantly higher in pregabalin group than in placebo group. The total dose of diclofenac requirement in 24hrs post-operatively was significantly lower in pregabalin group than in control group.

Our findings are also in accordance with Rajendran I et al(2014).[11]they compared gabapentin 900mg and pregabalin 300mg as preemptive analgesic in patients undergoing lower abdominal and limb surgeries under spinal anaesthesia.

They concluded that pregabalin single dose given 1 hour prior to surgery is superior to gabapentin and placebo in attenuating post operative pain in patients undergoing lower abdominal and lower limb surgery.

While Siddiqui et al[12] found that preoperative administration of 600 mg gabapentin in patients undergoing major bowel surgery does not reduce postoperative pain scores, opioid consumption, or opioid-related side effects. It can be explained as the pathophysiology of postoperative pain might be of different origin according to different surgical sites.

CONCLUSION

We conclude that pregabalin 75 mg is better drug for preemptive analgesia and it can be used safely as a part of multoimodal analgesia regimens.

REFERENCES

1. Part III :Pain terms ,a current list with definitions and notes on usage (pp 209-214 classification of chronic pain,secondedition,IASP task force on taxonomy,edited by H.merskey and N.bogduk ,IASP Press,seattle.
2. Dahl JB, Møiniche S. Pre-emptive analgesia. British Medical Bulletin. 2004;71(1):13-27.
3. Zhang J, Ho KY, Wang Y. Efficacy of pregabalin in acute postoperative pain: A meta-

analysis. Br J Anaesth. 2011;106:454–62.
4. Kehlet H, Wilmore DW. Multimodal strategies to improve surgical outcome. The American journal of surgery. 2002 Jun 30;183(6):630-41.
5. Jain S, Datta S. Postoperative pain management. Chest surgery clinics of North America. 1997 Nov;7(4):773-99.
6. Yucel A , Ozturk E, M said Ayodogan; effects of two different doses of Pregablinon morphine consumption and pain after abdominal hysterectomy, Current Therapeutic Research Volume 72, Issue 4 , August 2011.
7. Jokela R, Ahonen J, Tallgren M, Haanpää M, Korttila K. Premedication with pregabalin 75 or 150 mg with ibuprofen to control pain after day-case gynaecological laparoscopic surgery. British journal of anaesthesia. 2008 Apr 29;100(6):834-40.
8. David MH Lam, Sui-Wai Choi , Stanley SC: Efficacy of Pregabalin in acute post operative pain under different surgical categories: a meta-analysis; Medicine 94(46) 2014-2015.
9. Ittichaikulthol W, Virankabutra T, Kunopart M, Khamhom W, Putarawuthichai P, Rungphet S. Effects of pregabalin on post operative morphine consumption and pain after abdominal hysterectomy with/without salphingo-oophorectomy: a randomized, double-blind trial. Medical journal of the Medical Association of Thailand. 2009 Oct;92(10):1318.
10. Sebastian B, Talikoti AT, Nelamangala K, Krishnamurthy D. Effect of oral pregabalin as preemptive analgesic in patients undergoing lower limb orthopedic surgeries under spinal anaesthesia. Journal of clinical and diagnostic research: JCDR. 2016 Jul;10(7):UC01.
11. Eman A, Bilir A, Beyaz S. The effects of preoperative pregabalin on postoperative analgesia and morphine consumption after abdominal hysterectomy. Acta Medica Meditrranea. 2014 Jan 1;30:481-5.
12. Siddiqui NT, Fischer H, Guerina L, Friedman Z. Effect of a Preoperative Gabapentin on Postoperative Analgesia in Patients with Inflammatory Bowel Disease Following Major Bowel Surgery: A Randomized, Placebo–Controlled Trial. Pain Practice. 2014 Feb 1;14(2):132-9.