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Research Article

EFFECT OF PREGABALIN AND DEXAMETHASONE ON POSTOPERATIVE ANALGESIC REQUIREMENT IN MIDDLE EAR SURGERY

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A B S T R A C T

Background: Pain is one of the most important cause of delayed discharge after day care surgery, side effects of opioid lead to development of multimodal approach for post operative pain control. In this study we aimed at evaluating the effect of preemptive pregabalin and dexamethasone on pain scores and analgesic requirements in middle ear surgery.

Methods: Total 90 patients were randomized into three groups in a double blinded as:
Group I: Patients received oral Pregabalin capsule (300 mg) and Dexamethasone 8mg IV.
Group II: Patients received oral Pregabalin capsule (300 mg) and IV placebo.
Group III: Patients received oral placebo capsule and IV placebo.
Patients were examined for pain scores during first 24 hours postoperatively, total rescue analgesia and adverse events. Parametric data were analysed using ANOVA test. Non parametric data were analysed with chi square test.

Result: The demographic data were comparable with respect to age, BMI, ASA status, type and duration of surgery. Rescue analgesia was required earliest in Group III followed by that in Group II and last in Group I. Number of rescue doses required by patients of Group I & II ($p=0.003$) and between Group I & Group III ($p<0.001$) were found to be statistically significant. Incidence of sedation was higher in Group II (36.67%) and Group I (33.33%) and was found to be statistically significant ($p=0.039$). Incidence of nausea was higher in Group III (36.67%) and Group II (30.00%) as compared to Group I (6.67%) and was found to be statistically significant ($p=0.018$).

Conclusion: In this prospective study, oral pregabalin 300 mg with i.v. dexamethasone 8 mg administered before operation was significantly effective in reducing postoperative pain and postoperative analgesic requirement in patients undergoing modified radical mastoidectomy surgery. Use of pregabalin resulted in sedation in early postoperative period, but the patients were easily arousable and dexamethasone resulted in decreased incidence of nausea.

INTRODUCTION

Pain has been found to be one of the most common medical cause of delayed discharge after ambulatory surgery. High quality pain control after day care surgery is a major challenge. Despite progress that has been made with regard to postoperative pain control and the development of new standards for pain control protocol, many patients continue to experience intense pain after surgery (Apfelbaum *et al*., 2003; Mattila *et al*., 2005).Although opioids continue to have an important role in postoperative pain management, they have certain side effects (Mattila *et al*., 2005).A multimodal approach has been suggested to improve postoperative analgesia and to reduce the opioid related side effects (Kehlet *et al*., 2005).

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Interest has been focused on the analgesic, sedative, anxiolytic and opioid sparing effects of pregabalin, a structural analogue of GABA and a derivative of gabapentin. It has similar mechanism of action but superior pharmacokinetic profile in various pain settings, including postoperative pain.

The analgesic effect of gabapentin has been well established in various surgical populations. Compared with gabapentin, pregabalinhas a more favourable pharmacokinetic profile with better, faster and more predictable absorption (Hurley *et al*., 2006; Seib *et al*., 2006; Ho *et al*., 2006; Peng *et al*., 2007; Tiippana *et al*., 2007). It is rapidly and extensively absorbed after oral dosing, with maximal plasma concentration at 1 hour after single or multiple doses.

Its oral bioavailability is 90% and is independent of dose. These properties offer some advantages over gabapentin as a perioperative medication. Pregabalin has recently been investigated for perioperative use, but the results are

inconsistent. Some perioperative trial showed reduction in analgesic consumption and pain scores but at the expense of an increase in pregabalin related side effects.

Dexamethasone is a type of steroid medication having anti-inflammatory and immunosuppressant effects. It is 25 times more potent than cortisol in its glucocorticoid effect, while having minimal mineralocorticoid effect. Dexamethasone is used for the treatment of many conditions including rheumatologic problems, skin diseases, severe allergies, asthma, chronic obstructive lung diseases, croup, cerebraledema and a number of other diseases. Tissue injury induced acute inflammation is known to play significant role in the genesis of surgical pain, and dexamethasone should theoretically be beneficial in the management of acute surgical pain because of its potent anti-inflammatory effect.

Till date, on reviewing the literature no study has been conducted to compare the efficacy of pregabalin and dexamethasone in middle ear surgery. Therefore, the present placebo controlled study was designed to compare the efficacy and safety of pre-emptive pregabalin with or without dexamethasone in middle ear surgery for postoperative pain.

MATERIALS AND METHODS

After Institutional Ethics committee`s approval (No.ECR/262/inst/UP/2013), this prospective randomized study was carried in between period of January to December 2016.Informed consent was taken from all patients/relatives, who were recruited for study. Patients aged 18 years and above, either sex, American Society of Anaesthesiologists (ASA) physical status I-II and scheduled for elective middle ear surgery under general anaesthesia were taken for study. In all patients, hospital stay was minimum 24 hours. Patients of ASA III and IV, renal disease, bronchial asthma, acid peptic disease, history of obstructive sleep apnoea, history of seizure or other neurologic disorders, currently taking gabapentin or pregabalin for other medical purposes, known allergic reaction to pregabalin from previous use, blood pressure less than 90 mm Hg, history of addiction and moderate to severe respiratory disorder were excluded from the study.

All recruited 90 patients were made familiar with a standard 10 visual analogue scale (VAS) on pre-operative visit and underwent pre-anaesthetic checkup and investigations as per institutional protocol. Anxiolysis and aspiration prophylaxis were given night before and morning of surgery as per routine. Three studygroups were designed and patients were randomized into one of the following groups:

Group I: Patients received oral Pregabalin capsule (300 mg) and Dexamethasone 8mg IV.

Group II: Patients received oral Pregabalin capsule (300 mg) and IV placebo.

Group III: Patients received oral placebo capsule and IV placebo.

All the study/placebo medications were given one hour before surgery. The placebo capsules were prepared by pharmacy into identical capsules to maintain blinding. They were packed in sequentially numbered packages which were given to recruited patient in random order by computer generated random numbers, by a person not involved in any other part of study.

All the patients were pre-medicated with injection Midazolam 1 mg I.V. and injection Ondensetron 4 mg I.V. before induction.

Patients were monitored with ECG, non-invasive blood pressure and pulse oximetry (SpO_2). Pre-oxygenation with 100% O_2 was done for 3 minutes. A standard balanced generalanaesthesia technique was used in all patients. Induction was done with injection Propofol 2mg/kg till loss of consciousness. Endotracheal intubation was facilitated with injection Vecuronium bromide 4 mg I.V.

Appropriate size cuffed Endotracheal tube was inserted and the anaesthesia was maintained with Isoflurane with 50% N_2O and 50% O_2. Neuromuscular blockade was maintained with Vecuronium bromide. Intra-operative monitoring included ECG, NIBP, HR and SPO_2. Intraoperative inj. Diclofenac 1.5 mg/kg I.V. was given. At the end of surgery residual neuromuscular block was antagonized with injection Glycopyrrolate 0.08 mg/kg and Neostigmine 0.05 mg/kg I.V.

After tracheal extubation, patients were transferred to post-anaesthesia care unit. Post-operative pain severity was assessed using VAS. Assessment of VAS pain score were made hourly in post-operative period and rescue analgesia Inj. Tramadol 2mg/kg was given whenever VAS was ≥4.

Assessment of sedation scores were made at immediate postoperative period and every hour till the patient received rescue analgesic and it was documented only when the score were ≥3.

Sedation was assessed using Ramsay Sedation Scale

Score	Response
1	Anxious or restless or both
2	Cooperative, orientated and tranquil
3	Responding to commands
4	Brisk response to stimulus
5	Sluggish response to stimulus
6	No response to stimulus

Complications/side effects like sedation, nausea and vomiting, respiratory depression, dizziness and visual disturbances were also observed and recorded. The primary end points were the pain scores during first 24 hours postoperatively. Other end points include total rescue analgesic dose and adverse events.

Statistical Analysis

The statistical analysis was done using SPSS (Statistical Package for Social Sciences) Version 15.0 statistical Analysis Software. The sample size determination was based on α error of 0.05 and β error of 0.01 which showed that 30 patients per study groups were needed. The values were represented in Number (%) and Mean±SD. Parametric data were analysed by using analysis of variance (ANOVA). Non parametric data were compared using the Chi-square test. A p value of <0.05 was considered significant.

RESULTS

The demographic data were comparable with respect to age, sex, and ASA status in all groups. Moreover, there was no significant difference in the type of surgery (right vs left ear) and duration of surgery (Table 1). The age of group 1, group 2 and group 3 ranged from 15-48 years, with mean (±SD) 28.67(±9.55), 29.07 (±7.94) and 30.43(±7.93) years respectively. Age and sex distribution, in all three groups were insignificant. The mean duration of surgery was around

147.83(±15.96) minutes in group 1, 143.50(±13.84) minutes in group 2 and 139.17(±12.25) in group 3. There was no significant difference between all three groups (Table 1).

Table 1 Intergroup Comparison of Demographic Variables, Type and Duration of surgery

Variables	Group I (n=30)	Group II (n=30)	Group III (n=30)	P value
	Mean ± SD	Mean ± SD	Mean ± SD	
Age(years)	28.67+9.55	29.07+7.94	30.43+7.93	0.736*
Gender				
Female	5	7	13	0.056#
Male	25	23	17	
Type of surgery				
Left MRM	19	19	18	0.954#
Right MRM	11	11	12	
Duration of surgery (mins)	147.83 ± 15.96	143.50 ± 13.84	139.17 ± 12.25	0.064*

Data are represented as mean, SD, n (%) and ratio. SD=Standard deviation,*=ANOVA, #=chi square

Hemodynamic parameters were stable throughout the surgery in group 1, 2 and 3 as shown in Fig. 1, 2, and 3.

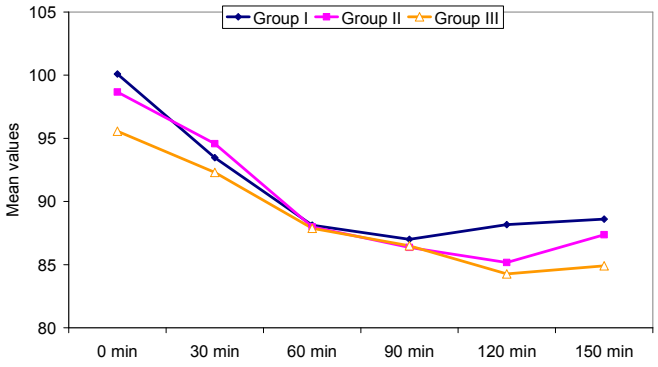

Fig 1 Heart rate intraoperative

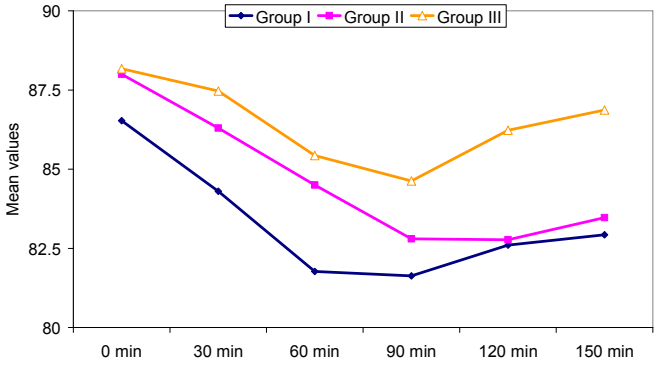

Fig 2 Mean arterial pressure intraoperatively

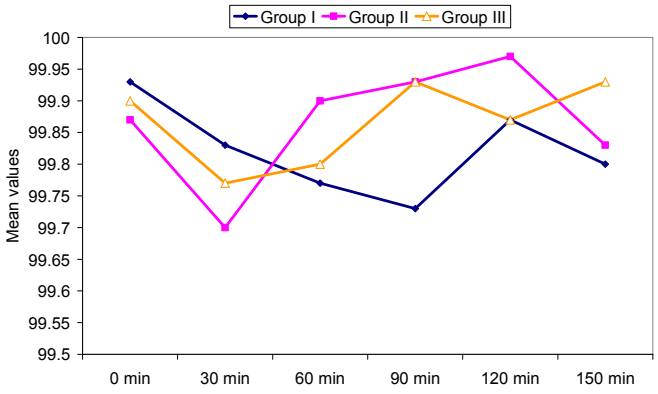

Fig 3 Oxygen saturation intraoperatively

On comparing the time of rescue analgesia, in Group 3 it was earlier (mean 3.61+1.10 hours) as compared to Group II (4.28+1.09 hours) and Group I (5.18+1.21 hours). Intergroup differences in time of rescue analgesia among the three groups was found to be statistically significant. Table 3 shows between group difference in time of post-operative rescue analgesia. Rescue analgesia was required earliest in Group III followed by that in Group II and last in Group I. Group difference between Group I & Group III was maximum (1.567+0.293), followed by between Group I & Group II (0.900+0.293) and was minimum between Group II & Group III (0.667+0.293). Group difference between Group II & Group III was not found to be statistically significant. Hence, order of time of requirement of post-operative rescue analgesia was as under:

Group I > Group II ≈ Group III

Table 2 Intergroup Comparison of Time of Post-operative Rescue Analgesia requirement (hrs)

	No. of patients	Min.	Max.	Mean	S.D.
Group I	30	3	7	5.18	1.21
Group II	30	2	6	4.28	1.09
Group III	30	1	5	3.61	1.10
Total	90	1	7	4.36	1.29

F=14.415; p<0.001

Table 3 Between Group Comparison of Time of Post-operative Rescue Analgesia requirement (hrs)

	Mean diff.	S.E.	'p'
Group I Vs. Group II	0.900	0.293	0.008
Group I Vs. Group III	1.567	0.293	<0.001
Group II Vs. Group III	0.667	0.293	0.065

Majority of patients of Group I required only 1-2 doses (83.34%) while majority of patients of Group II and Group III (Group II: 56.67%; Group III: 73.34%). At least two doses were required in all the patients of Group III. Proportional differences in number of rescue doses required by 001). Between group differences in number of rescue doses required by patients of Group I & II (p=0.003) and between Group I & Group III (p<0.001) were found to be statistically significant while difference between Group II & Group III was not found to be statistically significantpatients of Group I, Group II and Group III showed statistically significant difference (p<0.. Therefore, order of requirement of number of rescue doses among the above groups was:

Group I < Group II ≈ Group III

Table 4 Intergroup Comparison of Number of Rescue Analgesic doses required in Post-operative period

No. of rescue doses	Total	Group I (n=30)		Group II (n=30)		Group III (n=30)	
		No.	%	No.	%	No.	%
1	9	8	26.67	1	3.33	0	0.00
2	37	17	56.67	12	40.00	8	26.67
3	39	5	16.67	14	46.67	20	66.67
4	5	0	0.00	3	10.00	2	6.67

χ^2=27.533(df=6); p<0.001

Table 5 Between Group Comparison of Time of Post-operative Rescue Analgesia requirement (hrs)

	χ^2	'p'
Group I Vs. Group II	13.570	0.003
Group I Vs. Group III	22.240	<0.001
Group II Vs. Group III	3.050	0.382

On comparing the side effects, incidence of sedation was higher in Group II (36.67%) and Group I (33.33%) as

compared to Group III (10.00%) and difference in incidence of sedation among the groups was found to be statistically significant (p=0.039).Incidence of nausea was higher in Group III (36.67%) and Group II (30.00%) as compared to Group I (6.67%) and difference in incidence of nausea among the groups was found to bestatistically significant (p=0.018).Though incidence of vomiting was higher in Group II and Group III (10.00% each) as compared to Group I (3.33%) but difference in incidence of vomiting among the groups was not found to be statistically significant (p=0.538).Though incidence of respiratory depression was higher in Group I and Group II (10.00% each) as compared to Group III (6.67%) but difference in incidence of respiratory depression among the groups was not found to be statistically significant (p=0.872).Incidence of dizziness was higher in Group II (23.33%) and Group I (20.00%) as compared to Group III (10.00%) but difference in incidence of dizziness among the groups was not found to be statistically significant (p=0.372).Though incidence of visual disturbance was higher in Group I (26.67%) and Group II (20.00%) as compared to Group III (10.00%) and difference in incidence of visual disturbances among the groups was not found to be statistically significant (p=0.252).

Table 6 Intergroup Comparison of Side Effects/Complications

Side effects/ Complications	Total	Group I (n=30)		Group II (n=30)		Group III (n=30)		Statistical significance	
		No.	%	No.	%	No.	%	χ^2	P
Sedation	24	10	33.33	11	36.67	3	10.00	6.477	0.039
Nausea	22	2	6.67	9	30.00	11	36.67	8.061	0.018
Vomiting	7	1	3.33	3	10.00	3	10.00	1.239	0.538
Respiratory Depression	8	3	10.00	3	10.00	2	6.67	0.274	0.872
Dizziness	16	6	20.00	7	23.33	3	10.00	1.976	0.372
Visual Disturbance	17	8	26.67	6	20.00	3	10.00	2.756	0.252

DISCUSSION

Pain during and after surgery can lead to sensitization and subsequent over-sensitivity to it can also transform postoperative acute pain into a chronic one. Relieving pain during an operation by administering opioids is a common practice, which can also result in undesirable side effects. In order to scale these down, other non-opioid drugs can be utilized. In these, gabapentin has a satisfactory effect in alleviating postoperative pain. Pregabalin has been introduced as the new gabapentinoid with a higher efficacy and more desirable pharmacological profile than gabapentin. Therefore, it seems to be a better choice in alleviating postoperative pain.

In a review done by Zhang *et al*. (2011) five trials with six treatment arms used a perioperative pregabalin dose of less than 300 mg/day and combined data showed its statistically significant opioid sparing effect. Paech *et al*. (2007) did not observe any reduction in postoperative analgesic requirement after 100 mg pregabalin in gynaecological surgeries which could be due to a lower dose used. Balaban *et al*. (2012) studied pregabalin in a randomized placebo controlled trial on post-operative pain intensity after laparoscopic cholecystectomy. They concluded that postoperative pain scores were significantly lower in pregabalin group as compared to placebo group. Agrawal *et al*. (2017) gave patients a 150 mg dose of pregabalin, before a laparoscopic cholecystectomy under general anesthesia to relieve pain and even with this lower dose they found significantly lower pain intensity in that group than in the control group. The possible explanation to their findings may be short duration surgery as compared to ours. Chang *et al*. (2009) administrated pregabalin 300 mg 1 hr before and 12 hrs after laparoscopic cholecystectomy, but they did not find statistically significant differences in postoperative pain scores in the pregabalin group as compared to control.

Bindu *et al*. (2015), Sprung *et al*. (2011) and Alimian *et al*. (2012) performed three different trial in different surgeries and found that single preoperative dose of pregabalin was effective in reducing postoperative pain in thyroidectomy patients, lumbar discectomy patients and in patients undergoing laparoscopic gastric bypass surgery. Similarly, Eskander *et al*. (2013) also found significant reduction in postoperative pain in patients receiving 300 mg pregabalin preoperatively after shoulder arthroscopy. Ghai *et al*. (2011)studied the effect of pregabalin and gabapentin on postoperative pain after abdominal hysterectomy. They concluded that postoperative pain scores were decreased with single preoperative dose of both pregabalin and gabapentin after initial hour of recovery which is consistent with our study. There was no difference after initial hour which may be due to the fact that both drugs have a relatively shorter half-life and given as a single dose preoperatively. Kim *et al*. (2011) studied effect of pregabalin on postoperative pain after mastectomy. Assessment of pain scores were done in both pregabalin and placebo group 1, 6, 24 and 48 hours after surgery. VAS scores were significantly lower in pregabalin group as compared to placebo group in initial 8 hours.

V. Ghoghari D *et al*. (2014) used 300 mg pregabalin in one group and 300 mg pregabalin along with 8mg dexamethasone in other group in patients undergoing lower limb surgery and concluded that preoperative oral dose of pregabalin reduces opioid consumption and improves postoperative analgesia. Agrawal *et al*. (2016) concluded that administration of pregabalin 300mg and dexamethasone 16 mg conferred analgesic benefits superior to those of pregabalin alone, by reducing the requirement of rescue analgesia and side effects in orthopaedic surgery performed under spinal anaesthesia. Contrary to this, in a randomised placebo controlled trial by Demirhan A *et al*. (2014) addition of dexamethasone to pregabalin did not confer any additional pain relief. This is in contrast to our study as combining dexamethasone to pregabalin in patients undergoing MRM resulted in significant reduction in pain scores. Mathieson *et al*. (2008, 2009, 2011) studied effect of oral pregabalin 300 mg and oral pregabalin and dexamethasone 8 mg one hour before surgery in three different painful surgeries like hip arthroplasty, tonsillectomy and abdominal hysterectomy. No statistically significant difference was found in patients undergoing hysterectomy whereas in patients undergoing hiparthoplasty and tonsillectomy, pregabalin and pregabalin and dexamethasone reduced postoperative pain scores significantly. Choi *et al*. (2013) found that combined administration of pregabalin and dexamethasone confer analgesic benefits superior to those of pregabalin alone in patients undergoing lumbar spinal surgery. In our study, patients were given 300 mg oral pregabalin in one group and 300 mg oral pregabalin along with 8 mg i.v. dexamethasone in other group. Postoperative pain was assessed in the recovery room with the help of visual analogue scale (VAS) postoperatively and rescue analgesic was supplemented when VAS score was ≥4. Number of rescue

doses and time of first rescue analgesic requirement was noted. Number of rescue dosages were lower in pregabalin + dexamethasone and pregabalin group as compared to placebo group but significantly much lower in pregabalin + dexamethasone group compared to rest. Similarly, time of first rescue analgesic dose is much longer in pregabalin - dexamethasone group compared to rest which is concurrent with many of the studies stated above.

In our study, only side effect that was statistically significant in pregabalin + dexamethasone and pregabalin groups, was sedation in early postoperative period. These patients had complained of mild sleepiness but patient responded normally to verbal commands. Ghai *et al*. (2011) concluded that incidence of side effects did not differ in both groups except sedation and somnolence that were significant in pregabalin group as found in our study. Sharaswat *et al*. (2008) in their study concluded that most common side effects that were seen with pregabalin were sedation and somnolence in the early post-operative period that subsided over 2-3 hours.

Demirhan A *et al*. (2014) concluded that incidence of blurred vision was significantly higher in pregabalin + dexamethasone group. Mishriky *et al*. (2014) found that pregabalin increases sedation and visual disturbance compared to placebo. Fassoulaki *et al*. (2012) found that pregabalin increases dizziness and visual disturbances. The incidence of visual disturbances and dizziness was higher in the pregabalin group in our study also, although no statistically significant differences were observed.

Zhang *et al*. (2011) and Alimian *et al*. (2012) concluded that the incidence of postoperative vomiting was significantly lower with the use of pregabalin alone which is in contrast to our study, where pregabalin alone was comparable to placebo in this regard. Mathiesen *et al*. (2011) found that pregabalin increases dizziness but in combination with dexamethasone, it has decreased incidence of nausea and vomiting. Alimian *et al*. (2012) in their study found that apart from sedation, nausea and vomiting were also seen in pregabalin group but much less than in the control group. Similarly, in our study, postoperative nausea was much lower in pregabalin + dexamethasone group than other two groups.

These above mentioned side-effects are well known and have been reported in various chronic pain trials. Therefore, pregabalin should be used with caution in ambulatory surgery because side-effects may also influence the use of opioids.

CONCLUSION

The present study have shown that Oral pregabalin 300 mg with i.v. dexamethasone 8 mg administered before operation was significantly effective in reducing postoperative pain and postoperative analgesic requirement in patients undergoing modified radical mastoidectomy surgery.Though, the use of pregabalin resulted in sedation in early postoperative period, but the patients were easily arousable neither desaturated nor required oxygen supplementation.Ear surgeries are frequently associated with nausea, vomiting and the use of dexamethasone resulted in decreased incidence of nausea.

References

1. Apfelbaum JL, Chen C, Mehta SS, Gan TJ. Postoperative pain experience: results from a national survey suggest postoperative pain continues to be undermanaged. AnesthAnalg 2003; 97: 534-40
2. Mattila K, Toivonen J, Janhunen L, Rosenberg PH, Hynynen M. Post-discharge symptoms after ambulatory surgery: first-week incidence, intensity, and risk factors. AnesthAnalg 2005; 101: 1643-50
3. Kehlet H. Postoperative opioid sparing to hasten recovery: what are the issues? Anesthesiology 2005; 102: 1083-5
4. Kehlet H, Dahl JB. The value of 'multi-modal' or 'balanced analgesia' in postoperative pain treatment. AnesthAnalg 1993; 77: 1048-56
5. Hurley RW, Cohen SP, Williams KA, Rowlingson AJ, Wu CL. The analgesic effects of perioperative gabapentin on postoperative pain: a meta-analysis. RegAnesth Pain Med 2006; 31: 237-47
6. Seib RK, Paul JE. Preoperative gabapentin for postoperative analgesia: a meta-analysis. *Can J Anaesth* 2006; 53: 461-9
7. Ho KY, Gan TJ, Habib AS. Gabapentin and postoperative pain-a systematic review of randomized controlled trials. Pain 2006; 126: 91-101
8. Peng PWH, Wijeysundera DN, Li CCF. Use of gabapentin for perioperative pain control-a meta-analysis. Pain Res Manag 2007; 12: 85-92
9. Tiippana EM, Hamunen K, Kontinen VK, Kalso E. Do surgical patients benefit from perioperative gabapentin/pregabalin? A systematic review of efficacy and safety. AnesthAnalg 2007; 104: 1545-56
10. White PF, Tufanogullari B, Taylor J, Klein K. The effect of pregabalin on preoperative anxiety and sedation levels: a dose-ranging study. AnesthAnalg 2009; 108: 1140-5
11. Jokela R, Ahonen J, Tallgren M, Haanpaa M, Korttila K. Premedication with pregabalin 75 or 150 mg with ibuprofen to control pain after day-casegynaecological laparoscopic surgery. *Br J Anaesth* 2008; 100: 834-40
12. Mathiesen O, Jacobsen LS, Holm HE *et al*. Pregabalin and dexamethasone for postoperative pain control: a randomized controlled study in hip arthroplasty. *Br J Anaesth* 2008; 101: 535-41
13. Mathiesen O, Rasmussen ML, Dierkiing G *et al*. Pregabalin and dexamethasone in combination with paracetamol for postoperative pain control after abdominal hysterectomy. A randomized clinical trial. ActaAnaesthesiolScand 2009; 53: 227-35
14. Chang SH, Lee HW, Kim HK, Kim SH, Kim DK. An evaluation of perioperative pregabalin for prevention and attenuation of postoperative shoulder pain after laparoscopic cholecystectomy. AnesthAnalg 2009; 109: 1284-6
15. Jokela R, Ahonen J, Tallgren M, Haanpaa M, Korttila K. A randomized controlled trial of perioperative administration of pregabalin for pain after laparoscopic hysterectomy. Pain 2008; 134: 106-12
16. Paech MJ, Goy R, Chua S, Scott K, Christmas T, Doherty DA. A randomized, placebo-controlled trial of preoperative oral pregabalin for postoperative pain relief after minor gynecological surgery. AnesthAnalg 2007; 105: 1449-53
17. Agarwal A, Gautam S, Gupta D, Agarwal S, Singh PK, Singh U. Evaluation of a single preoperative dose of pregabalin for attenuation of postoperative pain

afterlaparoscopic cholecystectomy. *Br J Anaesth* 2008; 101: 700-4
18. Freedman BM, O'Hara E. Pregabalin has opioid-sparing effects following augmentation mammoplasty. *AesthetSurg J* 2008; 28: 421-4
19. Zhang J, Ho KY, Wang Y. Pregabalin for acute postoperative pain, *Br J of Anaesth* 2011; 106 (4): 454-62.
20. Balaban F,Yagar S, Ozgok A, Koc M, Gullapoglu H. A randomized, placebo-controlled study of pregabalin for postoperative pain intensity after laparoscopic cholecystectomy. *J ClinAnesth*. 2012 May; 24(3):175-8.
21. Ghai A, Gupta M, Hooda S, Singla D, Wadhera R: A randomized controlled trial to compare pregabalin with gabapentin for post-operative pain in abdominal hysterectomy. *Saudi journal of anaesthesia* 2011; 5(3):252-7.
22. Kim SY, Song JW, Park B, Park S, An YJ, Shim YH..Pregabalin reduces post-operative pain after mastectomy: a double-blind, randomized, placebo-controlled study. ActaAnaesthesiol Scand. 2011 Mar; 55(3):290-6. doi: 10.1111/j.1399-6576.2010.02374.x.
23. Woolf CJ, Chang MS. Pre-emptive analgesia- treating post-operative pain by preventing the establishment of central sensitization. Anaesthanalg. 1993; 77: 362-79. Gilron I. Gabapentin and pregabalin for chronic neuropathic and early post-surgical pain: current evidence and future directions. Current Opinion in Anaesthesiology 2007; 20:456-72.
24. Jokela R, Ahonen J, Tallgren M, Haanpaa M, Korttila K. A randomized controlled trial of perioperative administration of pregabalin for pain after laparoscopic hysterectomy. Pain 2008 Jan; 134(1-2):106-12. Epub 2007 May 15.
25. Sharaswat V, Arora V. Pre-emptive gabapentin vspregabalin for acute post-operative pain after surgery under spinal anaesthesia. *Indian journal of anaesthesia* 2008; 52(6):829-34.
26. Alimiam M, Imani F, Hasani V, Safari S, Sharifian M, Rahimzadeh P. Effect of single dose pregabalin on post-operative pain in dacryocystorhinostomy surgery. Anaesth pain; 2012(2):72-6.
27. Jadeja C, Khatri H, Oza V, Parmar V. Comparative study of single dose pre-emptive pregabalin vs. Placebo for post-operative pain relief in middle ear surgery. *Int J of Biomed &Adv Res*. 2014; 5(3):170.
28. V. Ghoghari D, D. Parmar D, D. Parmar D. Pregabalin and Dexamethasone for Post Operative Pain Relief In Lower Limb Surgeries - A Randomized Controlled Study. IOSRJDMS. 2014;13(8):10-14.
29. Mathiesen O, Jørgensen D, Hilsted K, Trolle W, Stjernholm P, Christiansen H *et al*. Pregabalinanddexamethasone improves post-operative pain treatment after tonsillectomy. Acta Anaesthesiologica Scandinavica. 2011; 55(3):297-305.
30. Choi Y, Shim J, Song J, Kim J, Yoo Y, Kwak Y. Combination of Pregabalin and Dexamethasone for Postoperative Pain and Functional Outcome in Patients Undergoing Lumbar Spinal Surgery. *The Clinical Journal of Pain*. 2013; 29(1):9-14.

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