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**Original Article**



# Comparison of Premedication with pregabalin and Gabapentinon Post-Operative Analgesia Inlaparoscopic Cholecystectomy Undergeneral Anaesthesia

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## ABSTRACT

To compare the efficacy of tablet pregabalin (150 mg) and tablet gabapentin (600 mg) on post operative analgesia in elective laproscopic cholecystectomy under general anesthesia. Also secondarily compare the shoulder pain intensity, need for rescue analgesia and compare hemodynamic changes. It can be observed from the present study that the two groups were comparable for age, sex, weight and ASA status of the patients. It was observed that post-operative mean VAS score was significantly different at 4 hr (p value 0.002) and at 8 Hr (p value <0.001) when compared between the two groups. No significant difference in mean VAS score was observed for other time points. It was concluded that pain score was significantly more in Group G at 4 hr and significantly lower at 8 hrs when compared to Group P.

It was observed that under group P, 88% of the patients had no shoulder pain while 12% had shoulder pain. Under group G, 78% of the patients had no shoulder pain while 22% had shoulder pain (p value 0.183)

It was observed that under group P, rescue analgesic was used in 12% & 88% of the patients after 4 hrs and 8 hrs respectively. Under group G. rescue analgesic was used in 34% & 66% of the patients after 4 hrs and 8 hrs, respectively. (p value <0.001)

Thus it was concluded from our study that pregabalin 150mg and gabapentine 600mg both are suitable and safer alternative for post operative pain management. However pregabalin provides better post operative analgesia.

**Key Words**: *Premedication, Pregabalin, Gabapentin, Post operative analgesia, Laproscopic cholecystectomy, General anesthesia*

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## INTRODUCTION

"Pain" can be best explained by the person who is suffering from it. However it can be explained as a distressing feeling or it can be better explained as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. It does not only increases the expenses of the patients in terms of medicines and hospital stay but also deterioratesthe psychological status of the patients.

Laparoscopic cholecystectomy is a minimally invasive procedure commonly done for gall stone disease. Even though it is minimally invasive, most of the patients experience post operative pain at operated site and shoulder pain for which multimodal analgesia has been tried [1]. Shoulder pain is common after laparoscopic procedures. The most accepted mechanism for shoulder pain after laparoscopic procedures is carbon dioxide gas retention between the right diaphragm and the hepatic done [2].

Pregabalin is a structural analogue of Gamma Amino Butyric Acid(GABA),which shares some characteristics with gabapentin. Its mechanism of action is nearly similar as gabapentin but it posses better pharmacokinetic profile [3].

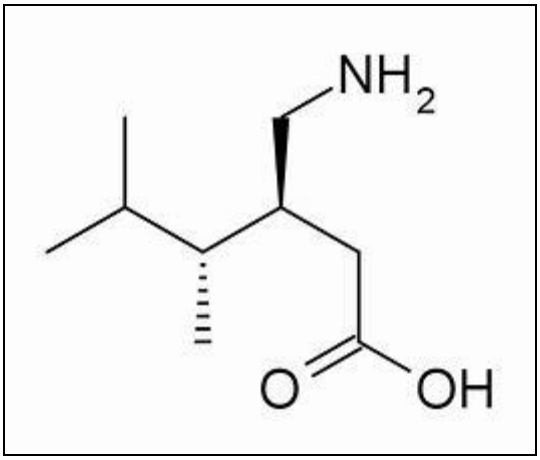
Pregabalin and gabapentin both the drugs helps in decreasing post operative pain undergoing laparoscopic cholecystectomy [4].

Its usefulness has already been established in the treatment of peripheral neuropathic pain [5]. It is claimed that both are more effective in preventing neuropathic component of acute nociceptive pain of surgery, reduces post operative opioid consumption and also perioperative anxiety [6,7].

Pregabalin and gabapentin may interfere with pain processing, leading to sensitization of the central nervous system and decreasing the experience of pain [8]. It can also alleviate stress response to surgical stimuli, decreases anesthetic consumption and also decreases postoperative nausea and vomiting [9].

Post operative pain could be attributed to inflammation resulting from tissue trauma due to the surgical incision, tissue injury due to cauterization or direct nerve injury as a result of nerve transection, stretching or compression. Pro-inflammatory mediators released as a result of tissue injury such as prostaglandins, interleukins, cytokines and neurotrophins contribute to nociceptor sensitization. Also, a decrease in tissue pH and oxygen tension, and increased lactate concentration which may be persistent at the site of surgery for many days play a significant role in peripheral sensitization and spontaneous pain following an incision [10].

**PHARMACOLOGY OF PREGABALIN**




**PHYSICAL AND CHEMICAL PROPERTIES**

(S)-(+)-3-isobutyl GABA, a lipophilic alkylated analogue GABA analogue. The chemical formula of Pregabalin is C8H17NO2 [11,12].

**MECHANISM OF ACTION**

Though a GABA analogue, Pregabalin does not bind to GABA receptors, does not convert into GABA or GABA antagonist or have effect on GABA uptake or breakdown [13,14]. Pregabalin selectively binds to the $\alpha_2$ -δ subunit of voltage-gated calcium channels present throughout the central and peripheral nervous system. This alters the calcium influx at the nerve terminals, thereby, inhibiting the release of excitatory neurotransmitters accounting for analgesic property, and upregulation of $\alpha_2$ -δ subunit attributing to hypersensitization process [15,16].

**PHARMACOKINETICS**

Pregabalin is rapidly absorbed with oral bioavailability exceeding 90%, peak plasma concentration reached within 1 hr and steady state achieved within 24-48 hrs after repeated administration. The volume of distribution following oral administration is approximately 0.5 L/Kg. Pregabalin does not specifically bind to plasma proteins. Pregabalin is transported across blood brain barrier with the help system L transporter [17]. Pregabalin gets metabolize in very less amount. Approximately 98% of the dose administered is excreted unchanged in the urine. Its elimination half-life is about 6 hrs with normal renal function [18].

**CLINICAL USES**

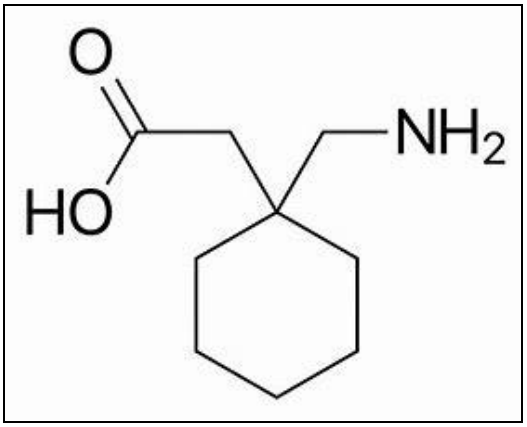
- Post operative pain [19]
- Generalized anxiety disorder [20]
- Antiepileptic [21]
- Neuropathic pain [22]
- Tremors [23]
- Attenuation of hemodynamic pressor response during laryngoscopy and intubation [24]
- Post herpetic neuralgia [25]

**SIDE EFFECTS**

Pregabalin is well tolerated with adverse effects usually ranging from mild-moderate, transient and dose-dependent. Somnolence and dizziness are commonly observed, others include visual disturbances, dry mouth, peripheral oedema, ataxia, dysarthria, tremors, lethargy, memory impairment, euphoria, constipation, increase in weight, depression, confusion, agitation, hallucination, loss or decrease of libido, erectile dysfunction, myoclonus, hypoaesthesia, arthralgia,

urinary incontinence, dysuria, thrombocytopenia and renal calculi [26]. Pregabalinis contraindicated in patients with known hypersensitivity to pregabalin or any of its compound.

**PHARMACOLOGY OF GABAPENTINE**




**PHYSICAL AND CHEMICAL PROPERTIES**

Gabapentin (1-(aminomethyl)cyclohexane acetic acid) is a noval anti-epilaptic agent, originally developed as aminobutyric acid (GABA)-mimetic compound to treat spasticity and has been shown to have anticonvulsant effects and also effective in chronic pain syndromes, specially neuropathic pain.
CHEMICAL FORMULA-C9H17NO2

**MECHANISM OF ACTION**

Exact mechanism on therapeutic effect of gabapentin is unclear .Gabapentin has no direct GABAergic action neither block GABA uptake or metabolism. Gabapentin helps in blocking the tonic phase of nociception which is influenced by formalin and carrageenan and exerts a potent inhibitory effects in neuropathic pain models and mechanical/thermal allodynia [27].

Its primary mode of action appears to be at the auxillary alpha-2gamma-1 subunit of voltage –gated calcium channels (though a low affinity for the alpha-2 gamma-2 subunit has also been reported) The major function of these subunits is to facilitate the movement of pore-forming alpha-1 subunitsof calcium channels from the endoplasmic reticulum to the cell membrane of pre-synaptic neurons [28,29].

Its mechanism of action as an antiepileptic agents which helps in inhibition of the alpha 2 delta subunit of voltage gated calcium channels.

**PHARMOKINETICS**

The drug is excreted through urine;plasma clearance is proportion to creatinine clearance;and dosage is adjusted accordingly as per renal function.The elimination half-life is approx5-9 hours..It was also observed that gabapentin had no significant interactions with other and antiepileptic drugs or oral contraceptives [30].

**CLINICAL USE**

- Post operative pain [31].
- EPILEPSY-gabapentin is indicated as adjunctive therapy in the treatment of partial seizures.
- Treatment of peripheral neuropathic pain such as neuropathy and post-hepatic neuralgia in adults
- Restless leg syndrome
- Cocaine withdrawl
- Insomnia
- Tremors in multiple sclerosis
- Hot flashes cancer related

**SIDE EFFECTS**

Acc. to a study, gabapentin has side-effects such as teratogenic effects and can cause hypoventilation and respiratory failure,deficits in visual fields, myopathy,self harm and suicidal behaviour, mitochondrial toxicity,somnolence,dizziness and diarrhoea, etc[27].

**LACUNAE IN EXISTING KNOWLEDGE**

Role of pregabalin and gabapentin has been evaluated for post operative analgesia but the result about which drug is better is conflicting.

Thus due to paucity of literature, we finally propose this study- "**Comparison of premedication with pregabalin and gabapentin on post-operative analgesia in laparoscopic cholecystectomy under general anaesthesia."**

## MATERIALS AND METHODS

The study was conducted in the Department of Anaesthesiology, ABVIMS &Dr Ram Manohar Lohia Hospital after obtaining approval from the Institutional review board and Institutional ethical committee. It was a double blinded randomized comparative trial of 100 adults (50 in each group) upto 60 years of either gender belonging to ASA I. Study subjects were divided into two groups by computer-generated number table

STUDY PERIOD: 1st November 2019 to 31st March 2021.

Computerized Randomization Technique:-

To randomly select among three groups, random number generating function RANDBETWEEN() will be used with lower limit as 1 and upper limit as2. If 1 is generated, group A will be allocated, if 2 is generated, group B will be allocated. Once any of group got 50 samples, rest of the samples will be allocated to another group until it has also got 50 patients.

INCLUSION CRITERIA: ASA l patients of age 18-60 years posted for elective laproscopic cholecystectomy surgery

EXCLUSION CRITERIA:

Chronic Opioids users, Chronic pregabalin/ gabapentin users, History of drug sensitivity, History of seizures and psychiatric disorders, History of neurological disorders, Pregnant or lactating women.

SAMPLE SIZE-

The sample size was determined from previous study of Mishra et al by using the NRS(Numeric Rating Scale) to compare the effectiveness by assuming a difference of 1 in NRS between two groups as clinically significant, thus sample size of 47 patients per group were considered necessary to detect statistical significances with an effect size of 0.67 at alpha 0.05 and power of 90%. So we selected a sample size of 50 patients per group.

*Technique*- •100 patients undergoing laproscopic cholecystectomy under generalanaesthesia were randomly selected and was compared into two groups Group-P and Group-G.

- Group P patients receivedpregabalin 150 mg and Group-G patients received gabapentin 600mg.The patients will receive study medications by mouth 1 hour before surgery.
- All the standard anaesthetic techniques were followed in all the patients.
- Patients were observed during premedication, preoperatively and post-operatively at 15min, 30 min, 1hr, 2hrs, 4hrs, 8hrs,12 hrs,24hrs.
- In both the groups will be comparable in terms of (age, .gender and weight) distribution, pre medication vital parameters and preoperative vital parameters.
- Post-operative pain score (VAS SCORE) will be compared in both the groups
- Both groups will also be compared in terms of early need for rescue analgesia.

ANAESTHESIA TECHNIQUE

After allocating the patient to the study group the patients will receive study medications by mouth 1 hour before surgery, Group A will receive pregabalin (150 mg) & Group B will receive gabapentin (600mg).

Baseline heart rate, systolic and diastolic blood pressure, oxygen saturation and respiratory rate will be recorded before administering the premedication.

The level of pain and duration of pain relief will be assessed at 30 min,1hr, 2hr, 4h, 8hr, 12hr, 24hr post operatively using a NRS Scale (where 0 denoted no pain at all and 10 for extremely painful).

The patients will be received in operating room and oxygen supplementation will be done by face mask. Monitors will be attached and base line Heart rate (HR), Systolic and Diastolic BP, Pulse Oximetry ($SPO_2$ ), ECG (Lead II, V5) will be recorded.

An intravenous line will be secured. A crystalloid intravenous infusion will be started.The patients will be pre-oxygenated with 100% oxygen for 3 minutes. After giving Inj. Midazolam (20mcg/kg),Inj. Fentanyl (2mcg/kg) by intravenous route, General anaesthesia will be administered in standard manner in both the groups. 1 gm iv Inj. paracetamol and 4mg iv Inj. ondansetron will be given 30 min before completion of surgery. 1gm iv, Inj. paracetamoltds will also be given post operatively to all the patients of both the groups.

After completion of the surgery, residual neuromuscular blockade will be reversed with Inj. Neostigmine 0.05 mg/kg and Inj. Glycopyrrolate 0.01 mg/kg intravenously. After extubation, the patients will be transferred to post anaesthesia care unit for observation. Thereafter pain score will be noted at 15min, 30min, 1hr, 2hr, 4hr, 8hr, 12hr and 24hr post operatively.Inj.Tramadol (50mg) IV used as rescue analgesia.

**RESULTS**

The study was conducted in the Department of Anaesthesiology, ABVIMS &Dr RML Hospital, New Delhi after obtaining due clearance from the Institutional Ethics Committee. It was a double blinded randomized comparative trial of 100 adults (50 in each group) upto 60 years of either gender belonging to ASA I. Study subjects were divided into two groups by computer-generated number table:

- Group P (n=50) received tablet Pregabalin 150mg
- Group G (n=50) received tablet Gabapentin 600mg

Following observations had been made

**Table 1: Comparison of mean age of the patients between the two groups**

| | Group P | Group G | p value |
|---|---|---|---|
| | **Mean ± SD** | **Mean ± SD** | |
| Age | 38.12 ± 10.74 | 41.78 ± 9.01 | 0.068 |

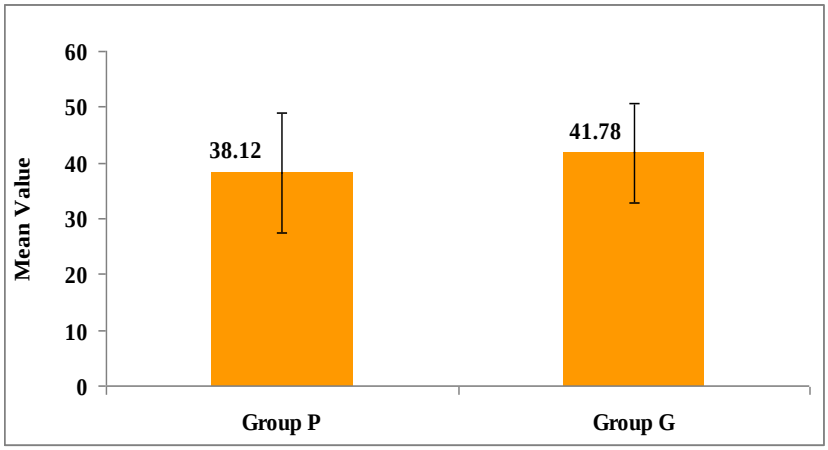



**Chart 1**

The table and chart shows the comparison of mean age of the patients between the two groups under the study. It was observed that mean age of group P was 38.12 ± 10.74 years while mean age of group G was 41.78 ± 9.01 years.

Further, it was observed that there was no significant difference in mean ages of the patients when compared between the two groups (p value 0.068).

**Table 2: Comparison between the two groups according to age groups**

| Age Groups | Group P | | Group G | | p value |
|---|---|---|---|---|---|
| | Frequency | % | Frequency | % | |
| 18 - 20 yrs | 3 | 6.0% | 1 | 2.0% | **0.361** |
| 21 - 30 yrs | 11 | 22.0% | 6 | 12.0% | |
| 31 - 40 yrs | 17 | 34.0% | 15 | 30.0% | |
| 41 - 50 yrs | 12 | 24.0% | 17 | 34.0% | |
| 51 - 60 yrs | 7 | 14.0% | 11 | 22.0% | |
| Total | 50 | 100% | 50 | 100% | |

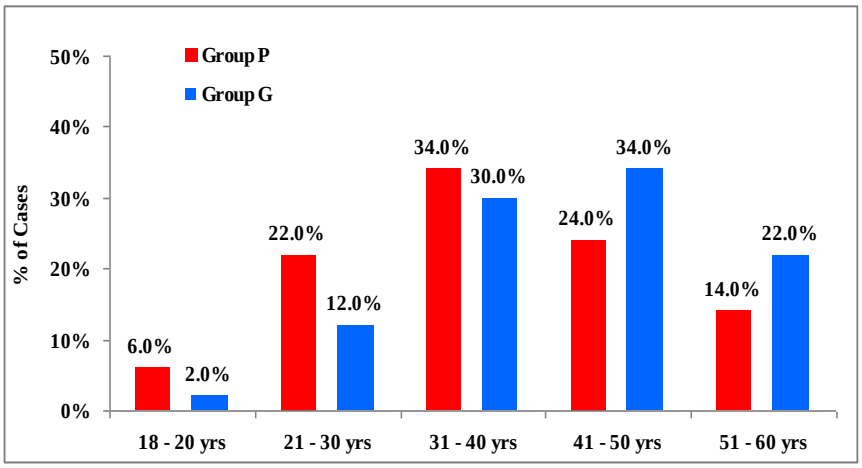



**Chart 2**

The table and chart shows the comparison between the two groups according to age groups. It was observed that under group P, 34% of the patients were in 31-40 years age group, 24% were in 41-50 years, 22% in 21-30 years, 14% in 51-60 years and 6% in 18-20 years age group. Under group GG, 30% of the patients were in 31-40 years age group, 34% were in 41-50 years, 12% in 21-30 years, 22% in 51-60 years and 2% in 18-20 years age group.

Further, it was observed that there was no significant difference in age group distribution when compared between the two groups (p value 0.361).

**Table 3: Comparison between the two groups according to gender distribution**

| Sex | Group P | | Group G | | p value |
|---|---|---|---|---|---|
| | Frequency | % | Frequency | % | |
| F | 27 | 54.0% | 22 | 44.0% | 0.317 |
| M | 23 | 46.0% | 28 | 56.0% | |
| Total | 50 | 100% | 50 | 100% | |

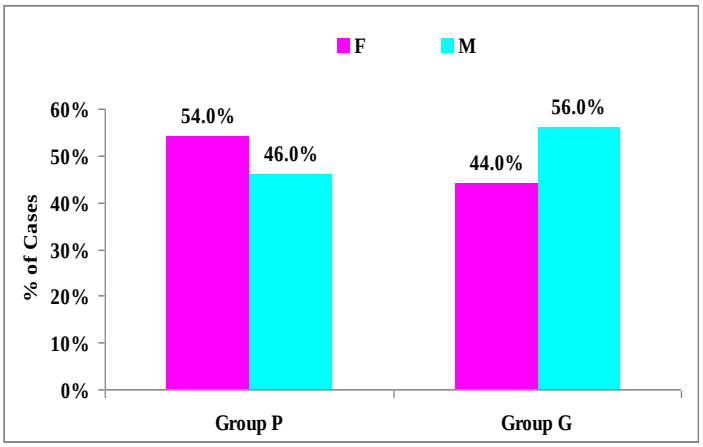



**Chart 3**

The table and chart shows the comparison between the two groups according to gender distribution. It was observed that under group P, 54% of the patients were females while 46% were males. Under group G, 44% of the patients were females while 56% were males.

Further, it was observed that there was no significant difference in gender distribution when compared between the two groups (p value 0.317).

**Table 4: Comparison of mean weight of the patients between the two groups**

| | Group P | Group G | p value |
|---|---|---|---|
| | Mean ± SD | Mean ± SD | |
| Weight | 60.72 ± 8.79 | 58.84 ± 11.51 | 0.361 |

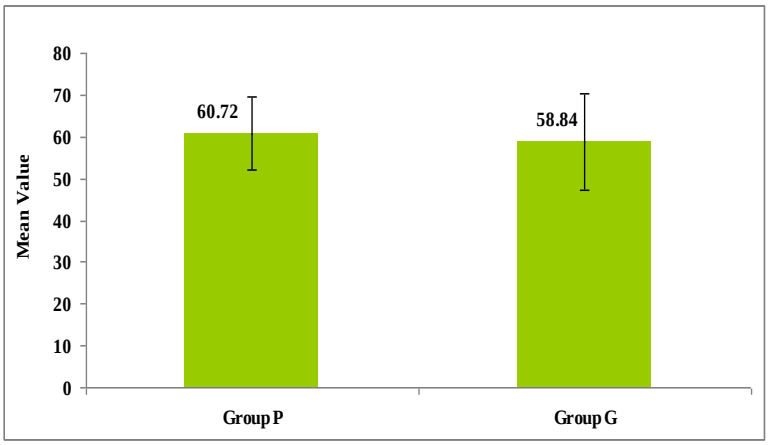



**Chart 4**

The table and chart shows the comparison of mean weight of the patients between the two groups under the study. It was observed that mean weight of group P was 60.72 ± 8.79 kg while mean age of group G was 58.84 ± 11.51 kg.

Further, it was observed that there was no significant difference in mean weight of the patients when compared between the two groups (p value 0.361).

**Table 5: Comparison of mean post-operative VAS score at various time intervals**

| VAS SCORE (POST OPERATIVE) | Group P | | | Group G | | | p value |
|---|---|---|---|---|---|---|---|
| | Mean ± SD | Min - Max | Median (IQR) | Mean ± SD | Min - Max | Median (IQR) | |
| 15MIN | 0.00 ± 0.00 | 0 - 0 | 0 (0 - 0) | 0.00 ± 0.00 | 0 – 0 | 0 (0 - 0) | 1.000 |
| 30 MIN | 1.30 ± 0.71 | 0 - 2 | 1 (1 - 2) | 1.14 ± 0.70 | 0 – 2 | 1 (1 - 2) | 0.239 |
| 1HR | 1.40 ± 0.67 | 0 - 2 | 1.5 (1 - 2) | 1.16 ± 0.74 | 0 – 3 | 1 (1 - 2) | 0.071 |
| 2HR | 1.62 ± 0.83 | 0 - 3 | 2 (1 - 2) | 1.60 ± 0.97 | 0 – 4 | 2 (1 - 2) | 0.611 |
| 4HR | 2.74 ± 1.71 | 1 - 7 | 2 (2 - 3) | 3.94 ± 2.06 | 1 – 8 | 4 (2 - 6) | 0.002* |
| 8HR | 6.76 ± 2.11 | 1 - 9 | 7 (7 - 8) | 4.94 ± 2.42 | 1 – 8 | 6 (2 - 7) | <0.001** |
| 12HR | 1.58 ± 0.61 | 0 - 3 | 2 (1 - 2) | 1.68 ± 0.62 | 1 – 3 | 2 (1 - 2) | 0.395 |
| 24HR | 2.04 ± 0.49 | 1 - 3 | 2 (2 - 2) | 2.16 ± 0.87 | 1 – 7 | 2 (2 - 2) | 0.663 |

***signifies significant p value<0.05**
****signifies highly significant p value<0.001****

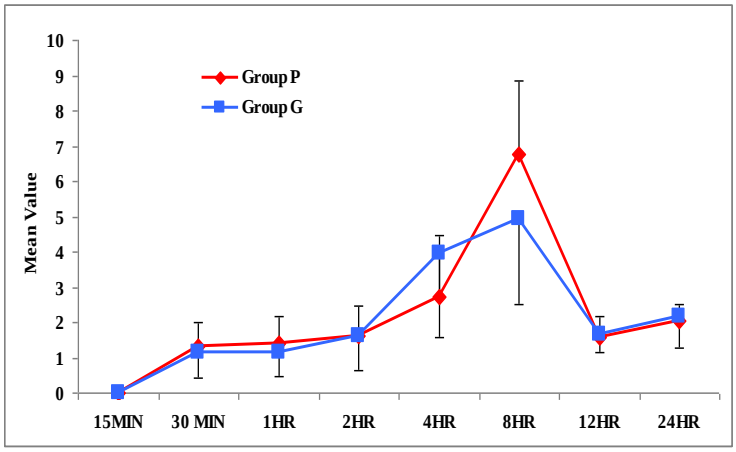



**Chart 5**

The table and chart shows the comparison of mean post-operative VAS score at various time intervals between the two groups under the study. It was observed that post-operative mean VAS score was significantly different at 4 hr (p value 0.002) and at 8 Hr (p value <0.001) when compared between the two groups. No significant difference in mean VAS score was observed for other time points.

It was concluded that pain score was significantly more in Group G at 4 hr and significantly lower at 8 hrs when compared to Group P.

**Table 6: Comparison between the two groups according to presence of shoulder pain**

| Shoulder Pain (Yes/No) | Group P | | Group G | | p value |
|---|---|---|---|---|---|
| | Frequency | % | Frequency | % | |
| No | 44 | 88.0% | 39 | 78.0% | 0.183 |
| Yes | 6 | 12.0% | 11 | 22.0% | |
| Total | 50 | 100% | 50 | 100% | |

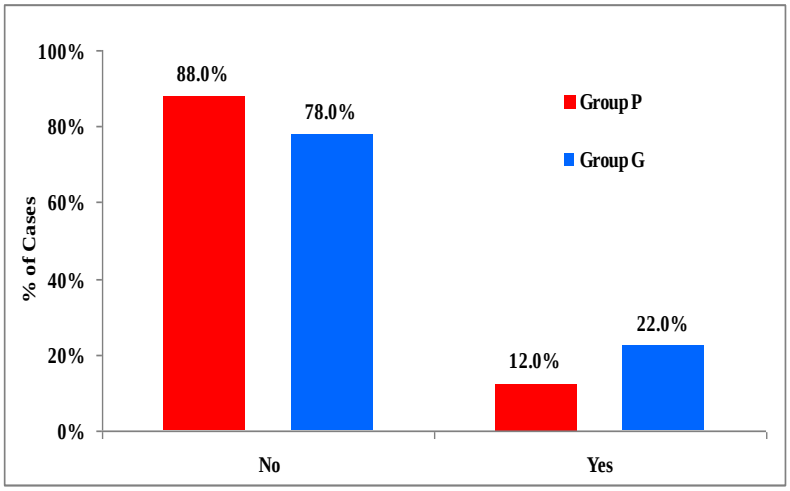



**Chart 6**

The table and chart shows the comparison between the two groups according to presence of shoulder pain. It was observed that under group P, 88% of the patients had no shoulder pain while 12% had shoulder pain. Under group G, 78% of the patients had no shoulder pain while 22% had shoulder pain. Further, it was observed that there was no significant difference in distribution of patients when compared between the two groups (p value 0.183).

**Table 7: Comparison between the two groups according to usage of rescue analgesic**

| Rescue Analgesic (Yes/No) | Group P | | Group G | | p value |
|---|---|---|---|---|---|
| | Frequency | % | Frequency | % | |
| After 8 Hrs | 44 | 88.0% | 33 | 66.0% | <0.001** |
| After 4Hrs | 6 | 12.0% | 17 | 34.0% | |
| Total | 50 | 100% | 50 | 100% | |

****signifies significant p value<0.001**

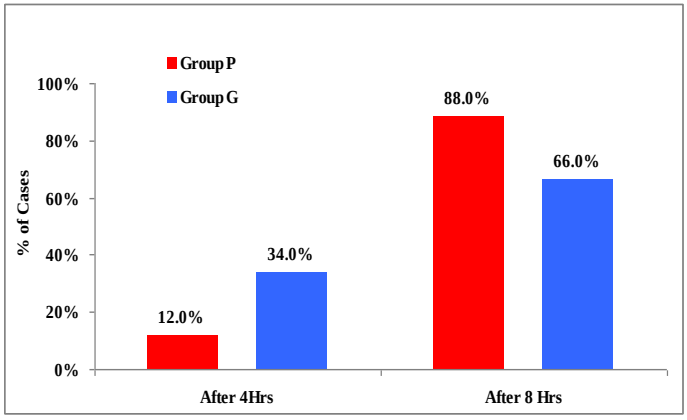



**Chart 7**

The table and chart shows the comparison between the two groups according to usage of rescue analgesic. It was observed that under group P, rescue analgesic was used in 12% & 88% of the patients after 4 hrs and 8 hrs respectively. Under group G. rescue analgesic was used in 34% & 66% of the patients after 4 hrs and 8 hrs, respectively.

Further, it was observed that there was significant difference in distribution of patients when compared between the two groups (p value <0.001).

**DISCUSSION**

Management of Post operative pain is the most important components of optimal post operative care and several complications like delayed recovery,metabolic alterations stress,anxiety and patient dissatisfaction too.Laparoscopic surgeries have displayed advantages over open surgeries like minimal post-operative pain, smaller incision, decreased length of hospital stay,reduced blood loss,less infection chances,hence providing faster recovery.

Laproscopic cholecystectomy is a very common surgical procedure done for various gall bladder conditions including cholelithiasis. Pain resulting from laproscopic procedure are shorter and less severe in comparision of laprotomy. It is shown that the lack of effective post operative pain control will not only result in adverse physiological effects but also can end in chronic pain.

Thus there are various techniques to alleviate post-operative pain in laparoscopic cholecystectomy but by the usage of multimodal analgesia to reduce the dosage of opioids in patients who are at a risk of developing chronic pain.

The main aim of multimodal analgesia is to reduce the dose and side effect of opioids by replacing with drugs which act by different mechanism.

Our study was a randomized comparative study conducted in department of Anaesthesiology, ABVIMS&DR.RAM MANOHAR LOHIA HOSPITAL,NEW DELHI from 1st November 2019 to 31st march 2021.

In this study,100 patients undergoing laparoscopic cholecystectomy under general anaesthesia were enrolled and randomly allocated into 2 groups.Group-P and Group-G receiving pregabalin 150mg and gabapentin 600mg respectively.

We did this study to compare post-operative analgesia in patients undergoing laparoscopic cholecystecomy under general anaesthesia.

We assessed the duration of analgesia by giving first rescue analgesia dose by VAS (visual analogue scale) at the interval of 15 min, 30 min,1 hr,2 hr,4hr,8hr,12hr and 24hr and shoulder pain was also assessed in both the groups at 24hr.

We also compared hemodynamic parameters between the two groups and also compared the need of rescue analgesia in both the groups.

**DEMOGRAPHIC COMPARISION**

Both the groups were similar and comparable with respect to age ,gender and weight so there was no statistically significant difference found in both the groups .hence, the co funding factor of the variables have probably been neutralized. In this randomized comparative study,the similarity of the characterstics of patients ensure that any difference in outcome is purely due to the intervention and not by chance bias.

**VITAL PARAMETER COMPARISION:PRE -MEDICATION**

Pre-medicational, in the group P HR, SPO2,SBP,DBP,RR were 82.7±3.35bpm,99.6±0.7%,123.68 ±7.2mmof hg,77.52 ±5.08 mm of hg, 20.66±3.24/min whereas in group G HR,SPO2,SBP,DBP,RR were 81.44±4.66 bpm ,99.42±0.86%,123.94±7.57mm of hg,78.02 ±5.29mm of hg,20.72±3.12/min respectively.Both the groups were comparable with pre-medication vital parameters and no statistically significant difference was found.

**VITAL PARAMETER COMPARISION:PRE-OPERATIVE**

Pre-operatively, in the group P HR,SPO2,SBP,DBP,RR were 81.02±3.99bpm,99.6±0.7%,126.86±6.27mmofhg,80.04±4.59 mm of hg, 21.1±3.25/min whereas in group G HR,SPO2,SBP,DBP,RR were 79.16±5.55 bpm,99.6±0.7%,125.5±5.47mm of hg,78.48±3.87 mm of hg ,20.78±3.08/min respectively. Both the groups were comparable with pre-operative vital parameters and no statistically significant difference were found.

**TIMING COMPARISION OF RESCUE ANALGESIA**

Inj.tramadol 50mg iv is given as rescue analgesia to alleviate post operative pain in patients undergoing laparoscopic cholecystectomy at 4hr and 8 hr.

In our study,the timing of rescue analgesia at 4thhourin group P was12% and whereas in group G it was 34%.and at 8th hour in group P was 88% and in group G it was 66% respectively. Which shows that the need of rescue analgesia at 4thhr was more in group G than group P whereas in group P the need of rescue analgesia at 8thhr is more than group G.

Further,it was observed that there was significant difference in timing of rescue analgesia given to patients in group P and group G when compared(p value <0.001).

**COMPARISION OF SHOULDER PAIN**

In laparoscopic cholecystectomy shoulder pain is observed in the patients after post-operative period and after receiving Pregabalin and Gabapentin at 24$^{th}$ hr.

It was observed that under group P, 88% of the patients had no shoulder pain while 12% had shoulder pain. Under group G, 78% of the patients had no shoulder pain while 22% had shoulder painFurther, it was observed that there was no significant difference in distribution of patients when compared the shoulder pain between the two groups (p value 0.183).

VAS

In our study,the effect of analgesia was assessed by the VAS(Visual analog score)after the arrival of the patient in the post operative ICU at 15min, 30 min, 1hr,2hrs,4hrs,8hrs,12hrs, 24 hrs after the surgery and also when the patient complain of the pain.

In the Group-Pmean and standard deviation of post-operative VAS score (at15 min 0.00±0.00,at 30 min 1.30±0.71,at 1 hrs1.40±0.67,at 2 hrs1.62±0.83,,at 12 hrs1.58±0.61,at 24 hrs2.04±0.49)in other hand in Group-G the mean and standard deviation of post-operative VAS score (at 15 min 0.00±,0.00,at 30 min 1.14±0.70, 1 hrs 1.16±0.74, at 2 hrs 1.60±0.97 ,at 12 hrs1.68±0.61, at 24 hrs2.16±0.87 ).VAS showed no statistically difference between both the group, this is because of general anaesthesia and significant difference was observed at 4 hrs and 8 hrs which is 2.74±1.71and 6.76±2.11 respectively in group-P and group-G is 2.74±1.71 and 4.94±2.42 respectively.so when compared both the groups ,significant difference was observed at 4 hrs and 8hrs( p value 0.0002) and (p value<0.001)and no significant difference in other time intervals.

**VITAL PARAMETER:POST-OPERATIVE**

The comparison of mean heart rate at various time points between the two groups Group-P and Group-G under the study. It was observed that there was a significant difference in mean heart rate at 30 min (p value 0.020), at 1 Hr (p value <0.001), at 2 Hr (p value 0.042), at 12 Hr (p value <0.001) and at 24 Hr (p value <0.001) when compared between the two groups. No significant difference in mean heart rate was observed for other time points.

The comparison of mean systolic blood pressure (SBP) at various time points between the two groups Group-P and Group-G under the study. It was observed that there was a significant difference in mean SBP at at 2 Hr (p value 0.022) and at 4 Hr (p value <0.001). No significant difference in mean SBP was observed for other time points.

The comparison of mean diastolic blood pressure (DBP) at various time points between the two groups under the study. It was observed that there was a significant difference in mean DBP at 2 Hr (p value 0.022). No significant difference in mean DBP was observed for other time points.

The comparison of mean SPO2 at various time points between the two groups under the study. It was observed that there was a significant difference in mean SPO2 at Post-operative (p value 0.048). No significant difference in mean SPO2 was observed for other time points. The comparison of mean respiratory rate (RR) at various time points between the two groups under the study. It was observed that there was a significant difference in mean RR at 4 Hr (p value 0.007). No significant difference in mean RR was observed for other time points.

**CONCLUSION**

From this study,the followingwere concluded

- Pregabalin provides better post operative analgesia than gabapentin in patients undergoing laproscopic cholecystectomy under general anaesthesia.
- Pregabalin 150 mg provides prolong pain relief than gabapentin 600mg in post operative period.
- In first 24hrs of surgery, Pregabalin and gabapentin both reduces the post operative opioid requirement in the patients.
- Both the drugs have minimal side-effects.

Thus we conclude that pregabalin 150mg and gabapentine600mg both are suitable and safer alternative for post operative pain management. However pregabalin provides better post operative analgesia.

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**APPENDIX-1**

American society of Anaesthesiologists physical status classification

ASA I Healthy patients without Organic,biochemical or psychiatric diseases.

ASA II A patient with mild systemic disease e.g,mild asthma or as well as controlled hypertension. No significant impact on daily activity.

ASA III Significant or severe systemic disease that limits normal activity.e.g,Renal Failure on dialysis or class 2congestive heart failure.

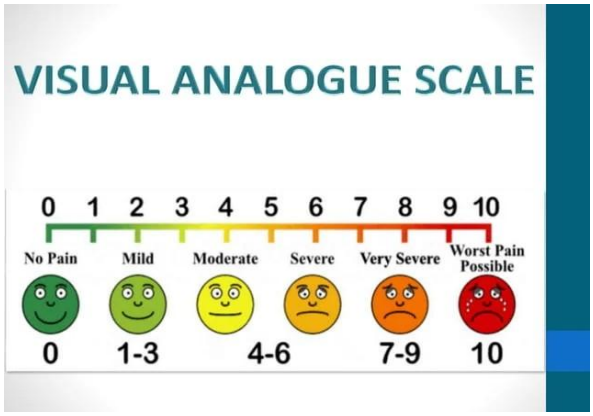
ASA IV Severe disease that is a constant threat to life or requires intensive therapy

ASA V Moribund patient who is likely to die in the next 24 hours with or without surgery

ASA VI A declared brain dead patient whose organs are being removed for donor purposes

APPENDIX-2

VAS SCALE




APPENDIX-3

PERFORMA

PROJECT TITLE: "Comparison of premedication with pregabalin and gabapentin on post operative analgesia in laparoscopic cholecystectomy under general anesthesia"

Name: Age/Sex: Cr no:

ASA Grade: Weight(Kg)

Height (Cm): Diagnosis:

DOS:

Associated co-morbidities and treatment details:

Surgery details:

Group assigned: Pregabalin (A) / Gabapentin(B

Pain scores

Time VAS Score

Post –operative pain Shoulder pain (yes/no) Rescue –analgesic given(yes/n0)

15 min, 30 min, 1 hr, 2hr, 4 hr, 8 hr, 12hr, 24 hr

Hemodynamic parameters:

Parameters Pre-medication Pre-operative 15 min, 30 min, 1 hr, 2hr, 4hr, 8 hr, 12hr, 24 hrs

HR, SBP, DBP, SPO2, RR