



# Compare the Effect of Oral Pregabalin versus Oral Clonidine for Attenuation of Hemodynamic Responses for Laryngoscopy and Tracheal Intubation

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

## **Article Information**

DOI: 10.9734/JPRI/2021/v33i43B32521

### Editor(s):

(1) Dr. Takashi Ikeno, National Center of Neurology and Psychiatry, Japan.

### Reviewers:

(1) Balbir Kumar, All India Institute of Medical Sciences (AIIMS), India.

(2) Mohsen Zhaleh, Kermanshah University of Medical Sciences, Iran.

(3) I. Putu Kurniyanta, Udayana University, Indonesia.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/72121>

**Original Research Article**

**Received 02 July 2021**

**Accepted 07 September 2021**

**Published 08 September 2021**

## **ABSTRACT**

This study was done to assess the laryngoscopy and intubation responses of two drugs namely, Pregabalin 150mg and Clonidine 0.2mg. The drugs were orally administered 90 minutes prior to induction, as the peak action of both the drugs are known to be 1-2 hours after oral administration. Variation of heart rate changes decreases with increasing age. The selected age range was 18-60 years in our study.

**Keywords:** Pregabalin; clonidine; laryngoscopy.

## **1. INTRODUCTION**

The induction of anaesthesia, laryngoscopy, tracheal intubation and surgical stimulation will

generally stimulate the cardio vascular responses which will eventually leads to changes in heart rate, blood pressure, cardiac rhythm [1,2]. These clinical features are even reported in

normotensive patients [3-5]. Epidural anesthesia can reduce the risk of physiologic responses to surgery such as autonomic hyperactivity, cardiovascular stress, increased metabolic rate, pulmonary dysfunction and immune system dysfunction [6,7]. Post-operative pain management is one of the major problem after abdominal surgeries [8,9]. The special advantage of epidural adjuvant is the synergistic effect they exhibit with local anesthetic which allowed a marked decrease in the dose of both drugs to achieve the same level of analgesia. Hence this study aims to compare the effect of oral Pregabalin and Clonidine for attenuation of hemodynamic responses to laryngoscopy and tracheal intubation.

## 2. MATERIALS & METHODS

### 2.1 Study Design

The study was conducted in SBMCH, operation theatre in patients scheduled for elective Surgery under general anaesthesia.

- Randomized, clinical study, Group A (Pregabalin) will receive 150mg Tab.
- Group B (Clonidine) receiving 0.2 mg Tab. Clonidine.

### 2.2 Inclusion Criteria

Age Weight  
: 18 - 60 years.  
BMI < 30 Kg/m<sup>2</sup>

Mallampattiscores : I & II  
Patients who have given valid informed consent.  
American Society of Anesthesiologist physical status I & II patients.

### 2.3 Exclusion Criteria

1. Patients who are not satisfying inclusion criteria.
2. Patients posted for emergency surgery
3. Patients with difficult airway
4. Lack of written informed consent
5. H/O seizures and any neurological deficit
6. Renal or liver disease.
7. Recent consumption of analgesics in past 24 hours
8. Known allergy or sensitivity to the drugs.
9. Ongoing therapy with sustained release opioids.
10. Cases which have been converted from laparoscopic to open surgery.

Patients satisfying inclusion criteria were randomly allocated by closed envelope method into 2 groups: Group A (Pregabalin), Group B (Clonidine). Group about the study methods, the visual analogue scale chart and along with information sheet. All were orally premedicated with alprazolam 0.5mg at 9.00 pm, the day before surgery.

Patients in group A received Tab Pregabalin 150 mg orally, Group B patients will received Tab. Clonidine 0.2mg 90 minutes prior to induction. Vital parameters were recorded 3 minutes before induction. After premedication with Inj. Glycopyrrolate 0.2 mg IV, Inj. Midazolam 1mg IV, Inj. Fentanyl 2 mcg/ kg IV was given and preoxygenation done. Laryngoscopy was performed with a Macintosh laryngoscope and trachea was intubated with appropriate sized endotracheal tube by a trained anaesthesiologist. Heart rate, systolic blood pressure, diastolic blood pressure, mean arterial pressure, pulse-oximetry was monitored and recorded at the time of intubation and at 1,3,5, 10 minutes after intubation. VAS score and vital parameters were assessed for 1, 2, 4, 6, 8 hours postoperatively.

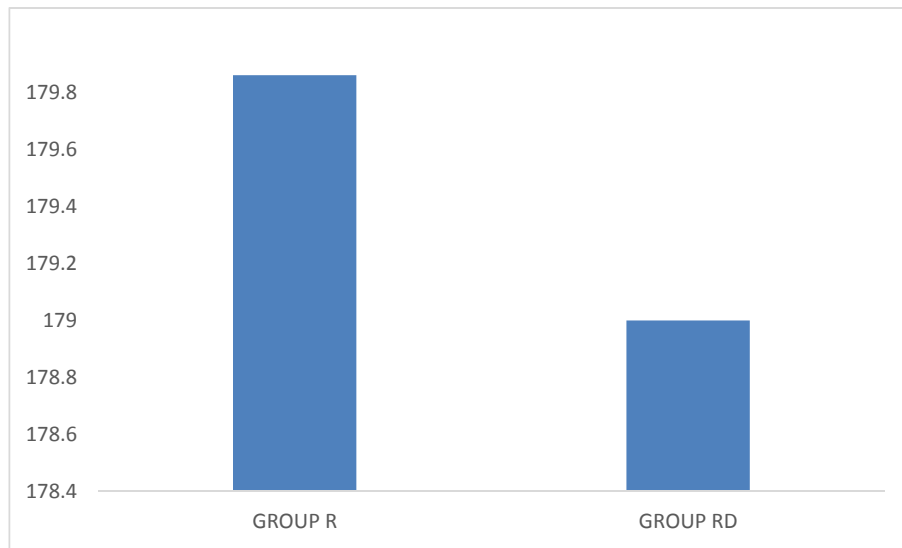
## 3. RESULTS

The drug onset time was estimated between the groups and it was found that, there was not much difference between both the groups. The onset time of both the groups were almost the same.

Mean blood pressure, there was significant difference between both groups. Group RD had a stable hemodynamic compared to Group R clinically though not significant statistically (Fig. 2 a& b).

The duration of post-operative analgesia was significantly different between groups, P value (<0.001), and the Dexmedetomidine group had a duration of analgesia which is more than Ropivacaine group. Value in minutes as an average were 289.07 minutes for the Dexmedetomidine group when compared to 243.53 minutes for the Ropivacaine group.

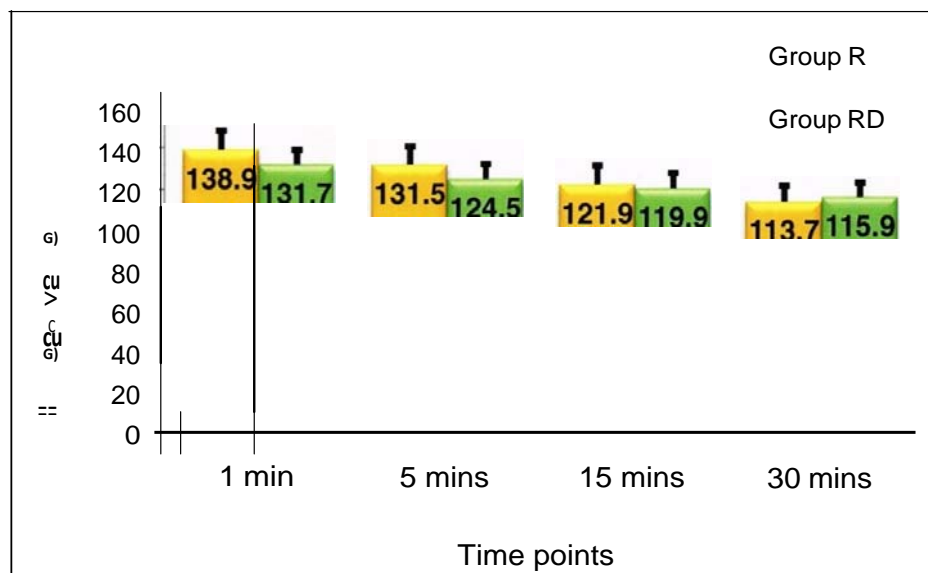
Among the cases, with respect to the VAS Score, both the groups were statistically comparable and were statistically significant during Pre-Op, at 1 hour, 2 hours, 4 hours & 8 hours.



**Fig. 1. Mean Drug onset time (sec)**

**Table 1. Visual analog score**

Variables	Group A		Group B		p-value
	Mean	SD	Mean	SD	
Pre-Op	0.40	0.50	0.72	0.46	0.0225
Post-Op 0 <sup>th</sup> hour	2.08	0.57	3.80	0.65	0.0000
Post-Op 1 <sup>st</sup> hour	1.96	0.54	3.56	0.58	0.0000
Post-Op 2 <sup>nd</sup> hour	2.76	0.56	3.04	0.73	0.0461
Post-Op 4 <sup>th</sup> hour	2.24	0.60	2.80	0.82	0.0001
Post-Op 6 <sup>th</sup> hour	1.92	0.40	2.60	0.65	0.0001
Post-Op 8 <sup>th</sup> hour	1.80	0.50	2.48	0.59	0.0001
Grand Mean	1.88		2.71		
<b>P value</b>	0.0241				



**Fig. 2a. Mean Systolic BP**

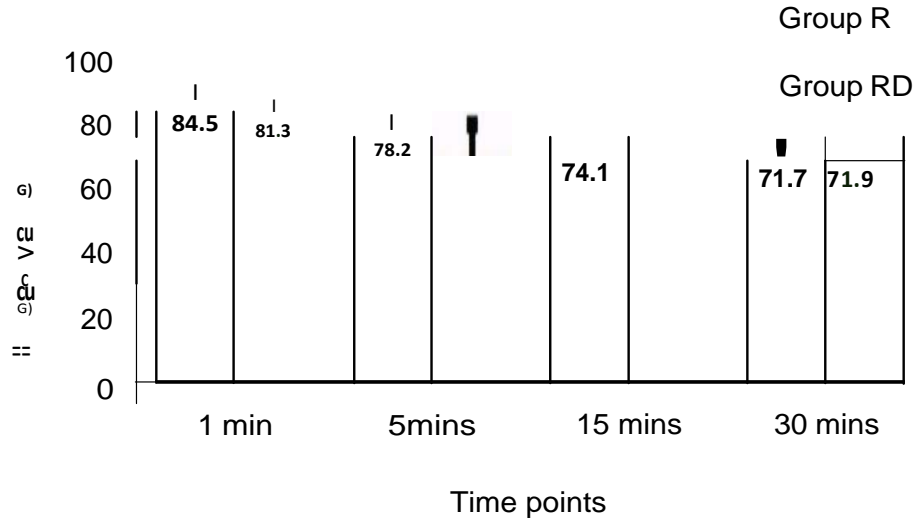


Fig. 2b. Mean diastolic BP

Table 2. Ramsay sedation score

Variables	Group A		Group B		P-value
	Mean	SD	Mean	SD	
Pre-Op	1.92	0.76	1.28	0.46	0.0009
Post-Op 0 hour	2.84	0.47	2.00	0.58	0.0000
Post-Op 1 <sup>st</sup> hour	2.64	0.49	1.76	0.52	0.0000
Post-Op 2 <sup>nd</sup> hour	2.40	0.58	1.68	0.48	0.0001
Post-Op 4 <sup>th</sup> hour	1.88	0.53	1.28	0.46	0.0000
Post-Op 6 <sup>th</sup> hour	1.64	0.57	1.00	0.00	0.0012
Post-Op 8 <sup>th</sup> hour	1.28	0.54	1.00	0.00	0.0162
Grand Mean	2.09		1.43		
P value	0.014				

Among the cases, with respect to the Anxiety Score, both the groups were statistically comparable and were statistically significant during Pre-Op, at 1 hour, 2 hours, 4 hours and 8 hours.

Among the cases, with respect to the Ramsay Sedation Score, both the groups were statistically comparable and were statistically significant (P < 0.05)

#### 4. DISCUSSION

The drugs were orally administered 90 minutes prior to induction, as the peak action of both the drugs are known to be 1-2 hours after oral administration. Heart rate changes were lower in patients with oral Clonidine as compared to Pregabalin. Systolic blood pressure, Diastolic blood pressure and the Mean arterial pressure changes were lower in patients with oral Clonidine compared to the Pregabalin. In this

study the systolic blood pressure, diastolic blood pressure, mean arterial pressure and heart rate changes associated with laryngoscopy were lower in Clonidine group compared to pregabalin group. Similar to a study done by Archana Raichurkar, Dinesh, et al Bagat, Sadik, et al. By giving pregabalin and Clonidine orally 90 minutes preoperatively, it reaches peak concentration in plasma at the onset of surgical stimulus thereby inhibiting central and peripheral neuronal sensitization to pain.

#### 5. CONCLUSION

This is a prospective randomised, clinical study to evaluate the pre-emptive analgesic effects of oral Pregabalin 150mg and oral Clonidine 0.2mg and post-operative analgesic requirements. By giving pregabalin and Clonidine orally 90 minutes preoperatively, it reaches peak concentration in plasma at the onset of surgical stimulus thereby inhibiting central and peripheral neuronal

sensitization to pain. Heart rate changes were lower in patients with oral Clonidine as compared to pregabalin. Systolic blood pressure, Diastolic blood pressure and the Mean arterial. Pressure changes were lower in patients with oral Clonidine compared to the pregabalin. VAS scoring were much lower in patients with oral pregabalin compared to clonidine. From the above observation of results we conclude that clonidine attenuates laryngoscopy and intubation response better than pregabalin.

### ETHICAL APPROVAL & CONSENT

The study was approved by the Institutional Ethics Committee and written informed consent from all the patients.

### COMPETING INTERESTS

Author has declared that no competing interests exist.

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Peer-review history:

The peer review history for this paper can be accessed here:  
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