Original Research Article

Indian Journal of Anesthesia and Analgesia
2019; 6(1): 168-172
DOI: http://dx.doi.org/10.21088/ijaa.2349.8471.6119.24

Intubation Sans Relaxant: Propofol VS. Triple Nerve Block

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Abstract

Aims: Methods that avoid use of muscle relaxants during intubation help us when their use would be detrimental to the patient/situation. Here we aim at intubations without muscle relaxants which could be of great significance in difficult airways. *Settings and Design:* It was a Randomised, prospective, comparative and double blinded study. *Methods and Material:* After approval by institutional ethical committee the study was conducted 60 patients of ASA I and II who were scheduled for elective surgeries under general anaesthesia. *Group P:* Direct Laryngoscopy using inducing doses of Propofol (2-3 mg/kg). *Group N:* Direct laryngoscopy using Triple nerve block technique.

- *Group P:* Direct Laryngoscopy and intubation was done with inducing doses of propofol (2-3mg/kg).
- *Group N:* The lingual branch of the Glossopharyngeal nerve, Bilateral superior and recurrent laryngeal nerve block were given.

Statistical analysis used: Haemodynamic values were analysed using the Student's unpaired't' test. Intubation grades were measured using Mann Whitney U test. *Results:* Intubating condition, ease of intubation and haemodynamic stability is better in triple nerve block group than propofol group. *Conclusions:* And Triple nerve block provides better ease and intubating conditions and haemodynamic stability compared to intubations using Propofol.

Keywords: propofol; triple nerve block; intubating condition; haemodynamic changes during laryngoscopy and intubation.

How to cite this article:

Ruchi Tandon, Neelesh Nema, Arun Balaji. Intubation Sans Relaxant: Propofol VS. Triple Nerve Block. Indian J Anesth Analg. 2019;6(1):168-72.

Introduction

There are various methods of intubating an airway. It is desirable for anaesthesiologists to hone their skills in different methods as this helps an anaesthesiologist in making a judicious decision of using a particular method as justified by the situation. Broadly, we can secure the airway either using muscle relaxants or even by avoiding them. Methods that avoid use of muscle relaxants help us when their use would be detrimental to the patient/situation. Here we aim at intubations without muscle relaxants which could be of great significance in difficult airways.

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Received on 13.10.2018, **Accepted on** 14.11.2018

Materials and Methods

After approval by institutional ethical committee, a bilingual written informed consent was obtained from all patients. It was a Randomised, prospective, comparative and double blinded study was conducted in Hamidia Hospital, Bhopal from January to September 2015. 60 patients of both sexes, aged 18-60 years of ASA I and II who were scheduled for elective surgeries under general anaesthesia were included. H/O Hypersensitivity to any of the drugs were excluded. 30 patients each were randomly divided into two groups using sequentially numbered, sealed opaque envelope technique:

- **Group P:** Direct Laryngoscopy using inducing doses of Propofol (2-3 mg/kg).
- **Group N**: Direct laryngoscopy using Triple nerve block technique.

All patients underwent thorough pre-anaesthetic check-up and were explained the procedure. The multichannel monitor to record

i) Heart rate

ii) SpO_2

iii) ECG

iv) NIBP

v) $EtCO_2$

Were applied to the patient on arrival to the operating room. Then a suitable peripheral vein was cannulated For all patients before the procedure.

All patients were premedicated with

i) Glycopyrrolate 0.2 mg i.v.

ii) Midazolam (0.05- 0.1 mg/kg i.v)

iii) Fentanyl (1 mcg/kg)

Preoxygenation with 100% O_2 was given to all patients for 3 minutes.

Group P: Direct Laryngoscopy and intubation was done with inducing doses of propofol (2-3 mg/kg).

Group N: The lingual branch of the Glossopharyngeal nerve was blocked bilaterally by keeping cotton pledgets soaked in 4% lignocaine in contact with inferior aspect of palatoglossal arch. Superior laryngeal nerves were blocked bilaterally by infiltrating 2% Lidocaine at lateral and inferior aspect of hyoid. Finally, 3 ml of 2% Lidocaine was injected through cricothyroid membrane into the trachea which blocks the recurrent laryngeal nerve.

The intubating conditions and ease of intubation were assessed using intubation Grading Scale and number of attempts required for intubation respectively. Systolic Blood Pressure, Diastolic Blood Pressure, Pulse rate, SpO_2, ECG and Respiratory rate were recorded during intubation and then 1 and 3 minutes post intubation. All the data were tabulated and analysed statistically. Parametric values are expressed as Mean ± standard deviation. A p value < 0.05 was considered significant. Haemodynamic values were analysed using the Student's unpaired 't' test. Intubation grades were measured using Mann Whitney U test.

Intubation Grading Scale

Grade 0	No coughing/Gagging in response to intubation,
Grade 1	Mild coughing/Gagging that did not hinder intubation,
Grade 2	Moderate coughing and/or Gagging that interfered minimally with intubation,
Grade 3	Severe Coughing and/or Gagging that made intubation difficult,
Grade 4	Severe coughing and gagging that required additional dose of Propofol/additional local anaesthesia and/or other change in technique to achieve successful intubation.

Results

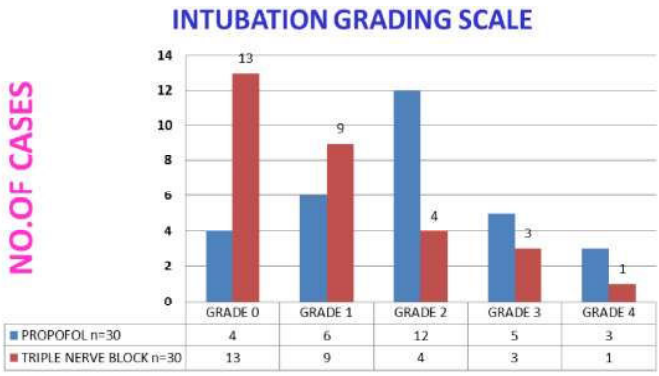


Fig. 1: The intubation Grading Scale shows intubations using Triple nerve block has better intubating conditions than Propofol.

Ease of Intubation

The ease of Intubation is assessed based on the number of attempts required for successful intubation.

Attempt – 1	Single attempt at intubation without any manipulation,
Attempt – 2	2 attempts at intubation with/without manipulation,
Attempt - 3	3 attempts at intubation with/without manipulation.

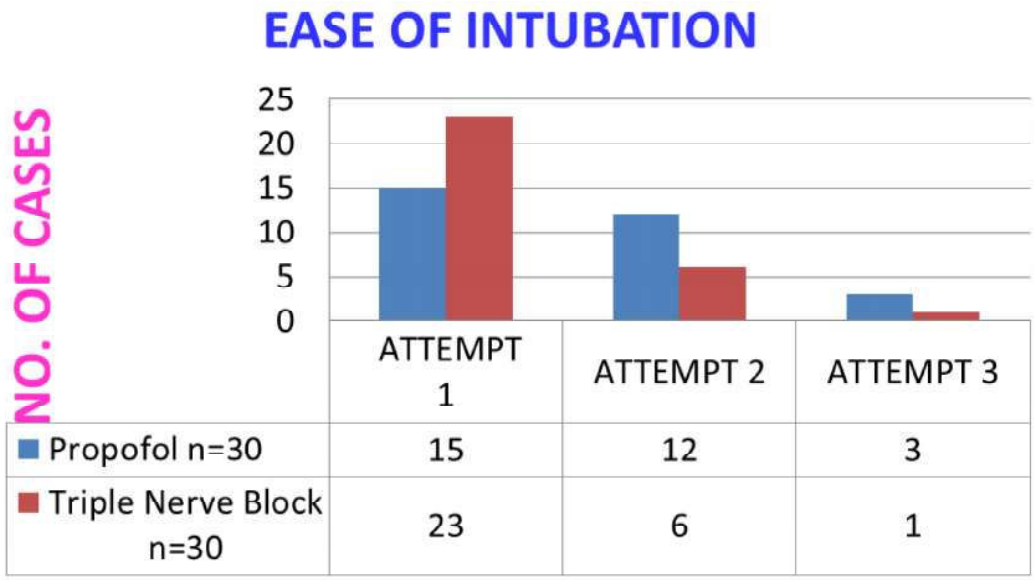


Fig. 2: The ease of Intubation chart shows Triple nerve block was better than Propofol based on the number of attempts and this was statistically significant with p value of 0.036.

Haemodynamic parameters comparison

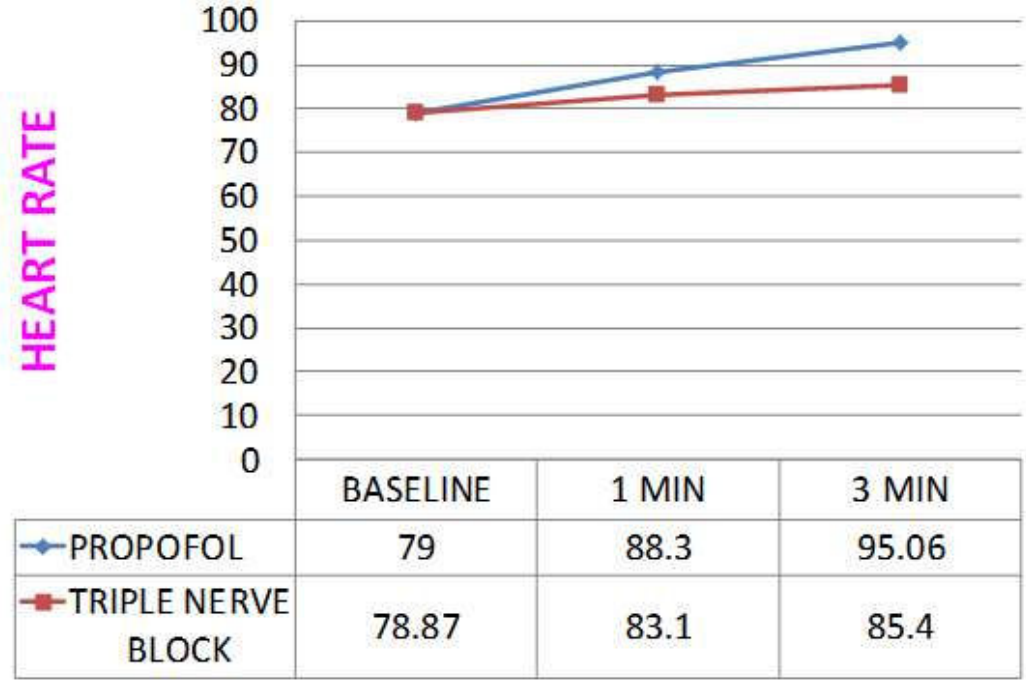
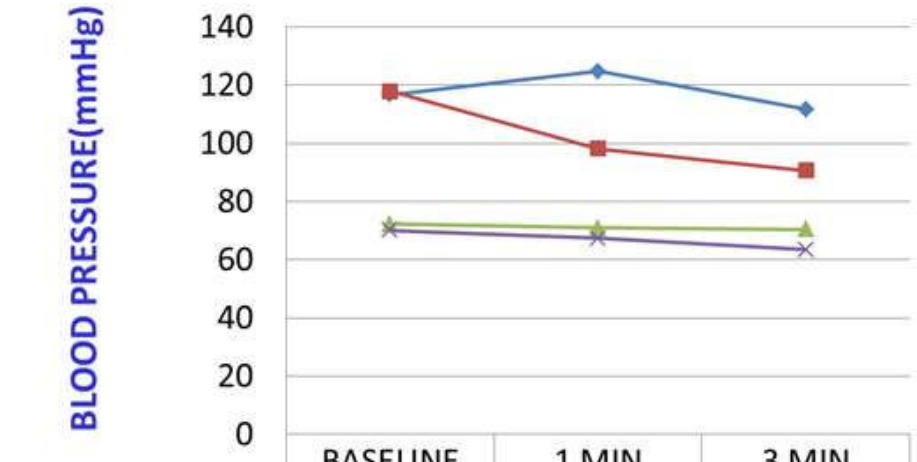
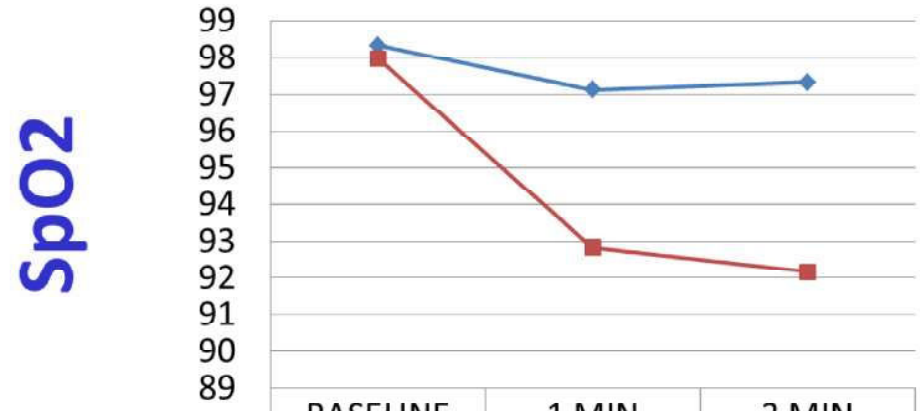


Fig. 3: Comparison of Heart rate betrween 2 groups and it was statistically significant with p value< 0.05 at 1 min and 3 mins post intubation.



	BASELINE	1 MIN	3 MIN
TRIPLE NERVE BLOCK SBP	116.73	124.67	111.73
PROPOFOL SBP	117.93	98.07	90.67
TRIPLE NERVE BLOCK DBP	72.27	71	70.4
PROPOFOL DBP	70.07	67.4	63.47

Fig. 4: Comparison of SBP and DBP between 2 groups. SBP is extremely statistically significant at 1 and 3 mins post intubation with p value <0.001.DBP is not significant at 1 min but significant at 3 mins with p value<0.05.



	BASELINE	1 MIN	3 MIN
TRIPLE NERVE BLOCK	98.33	97.13	97.33
PROPOFOL	97.97	92.83	92.17

Fig. 5: Comparison of SpO_2 between 2 groups and is statistically significant with p value <0.05.

Discussion

The routine use of succinylcholine for endotracheal intubation has been increasingly questioned. Here we aim at attaining skills of intubations using techniques which avoids the usage of muscle relaxants and could serve as an alternative for muscle relaxants in difficult airways.

- Initial studies have suggested that a combination of Propofol and Fentanyl without a muscle relaxant and nerve blocks for upper airway anaesthesia provide good intubating conditions.

Intubation using Triple nerve block has better intubating conditions than Propofol. Ease of intubation was better with Triple nerve block than Propofol with a significant p value ≤ 0.05. There is Increase in Heart rate and Decrease in Systolic and Diastolic blood pressure, 1 and 3 minutes post intubation and the values are statistically significant. Saturation (SpO_2) fall was more profoundly seen in Propofol group than Triple nerve block at 1 and 3 minutes post intubation, and it was statistically significant. There were no adverse events encountered with both techniques and all patients have been successfully intubated. Thus both these techniques serves as a good alternative to muscle relaxants which could be of utmost significance in patients with difficult airways.

Conclusion

In our study we conclude that, Intubations using both Triple nerve block and Propofol were suitable options as alternatives for intubations without muscle relaxants. And Triple nerve blocks provide better ease and intubating conditions and haemodynamic stability compared to intubations using Propofol.

Key Messages:

Triple nerve block provide better ease and intubating conditions and haemodynamic stability compared to intubations using Propofol.

Conflict of Interest: No conflict of interest

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