CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.2717059

Available online at: http://www.iajps.com *Research Article*

COMPARE THE INTENDED RESULT OF SINGLE BOLUS INTRAVENOUS LIGNOCAINE WITH MAGNESIUM SULPHATE TO REDUCE THE PRESSURE OF AVAILABILITY OF OXYGEN TO TISSUES DURING LARYNGOSCOPY AND INTUBATION

[1]Dr Ayesha Zafar, [2]Dr Monisa Tahir, [3]Dr. Amera Aziz
[1]THQ Hospital Safdarabad, [2]BHU 76/10 –r, Khanewal, [3]MBBS, Islam Medical College Sialkot.

Article Received: March 2019 **Accepted:** April 2019 **Published:** May 2019

Abstract:
Background: *Placement of flexible plastic tube into trachea to maintain an open airway is done during general anesthesia and its effect availability of oxygen to tissue in patients.*
Objectives: *The aim of this study was to compare the intended result of single bolus intravenous lignocaine with magnesium sulphate to reduce the pressure of availability of oxygen to tissues during laryngoscopy and intubation.*
Material and Methods: *There were 178 patients included in this study. Two groups were made with 89 patients each. Group A receive intravenous 1% lignocaine 1mg/kg. Group B receive intravenous magnesium sulphate 10mg/kg. the data about mean arterial pressure, heart rate was compared between 2 groups. Data was analyzed wing SPSS version 22.*
Place of study. *1st March, 2018 to 31ST August, 2018 in Jinnah Hospital. Lahore.*
Duration of study: *Time period for this study was 6 months.*
Result: *In 54% patients of group A, 20% reduction of mean Arterial pressure was observed and 36.69% reduction in group B. there was 25% reduction in heart rate from basilines values in 11% patients of group A and 6.23% in that of group B.*
Conclusion: *Comparative study showed that lignocaine was more effective than magnesium sulphate by preventing increase in HR and MAP after intubation and laryngoscopy.*
Keywords: *Hemodynamic changes, MAP, HR, Stress response.*

Corresponding author:
Dr. Ayesha Zafar,
THQ Hospital Safdarabad.

QR code

Please cite this article in press Ayesha Zafar et al., ***Compare The Intended Result Of Single Bolus Intravenous Lignocaine With Magnesium Sulphate To Reduce The Pressure Of Availability Of Oxygen To Tissues During Laryngoscopy And Intubation.,*** *Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

Placement of flexible plastic tube into trachea to maintain an airway is done during anesthesia. This process produce increase in blood pressure, pulmonary arterial pressure, heart rate by stimulating tracheobronchial tree and laryngopharynx [1]. It has regulatory mechanism which has increase in heart rate and blood pressure [2]. The degree of instantaneous movement in response to laryngeal stimulations shows relations with depth of anesthesia and other patient dependent variable [3,4]. Various harmful stimuli result in different response [4]. Endoscopy of larynx and placement of flexible tube into trachea are intense stimuli of hemodynamics response [5]. Less hemodynamic changes cause LMA insertion [6]. The MAC value for placement of flexible tube into trachea is 30% more than for cuts made through the skin for procedure [7]. Inadequate blood supply to heart muscles is often part of hemodynamic changes [8]. It has also been described in literature [9]. This study compares efficacy of single bolus intravenous lignocaine with magnesium sulphate to reduce response of larynx endoscopy and intubation.

MATERIALS AND METHODS:

This study was conducted at 1st March, 2018 to 31ST August, 2018 in Jinnah Hospital. Lahore. Two groups were made with 89 patients each. Total patients were 178. Patients requiring general anesthesia and airway maintenance with intubation were selected. Patients with history of allergy, abnormality of airway, hypertension, epilepsy, diabetes mellitus and hypersensitivity to lignocaine magnesium sulphate were excluded. Patients are given counselling regarding procedure of the study. Group A receive 1% intravenous lignocaine 1mg/kg. group B receive intravenous magnesium sulphate 10mg/kg. the data about heart rate and mean arterial pressure was compared between two groups. Later on, data was analyzed using SPSS version 22. P value was found by independent test of two samples.

RESULTS:

In this study, majority patients were between 20-49 years. In group A, mean age of patients was 33+-7.4 years. In group B mean age was 34.5+_5.6 years.

Table I: Distribution of cases by age in both groups

Age (Year)	Group - A (Number)	% age	Group -B (Number)	% age
20-29	31	34.83	20	22.47
30-39	38	42.69	53	59.55
40-49	20	22.47	16	17.97
Total	**89**	**100.0**	**89**	**100.0**
Mean±SD	**33±7.4 years**		**34.5±5.6 years**	

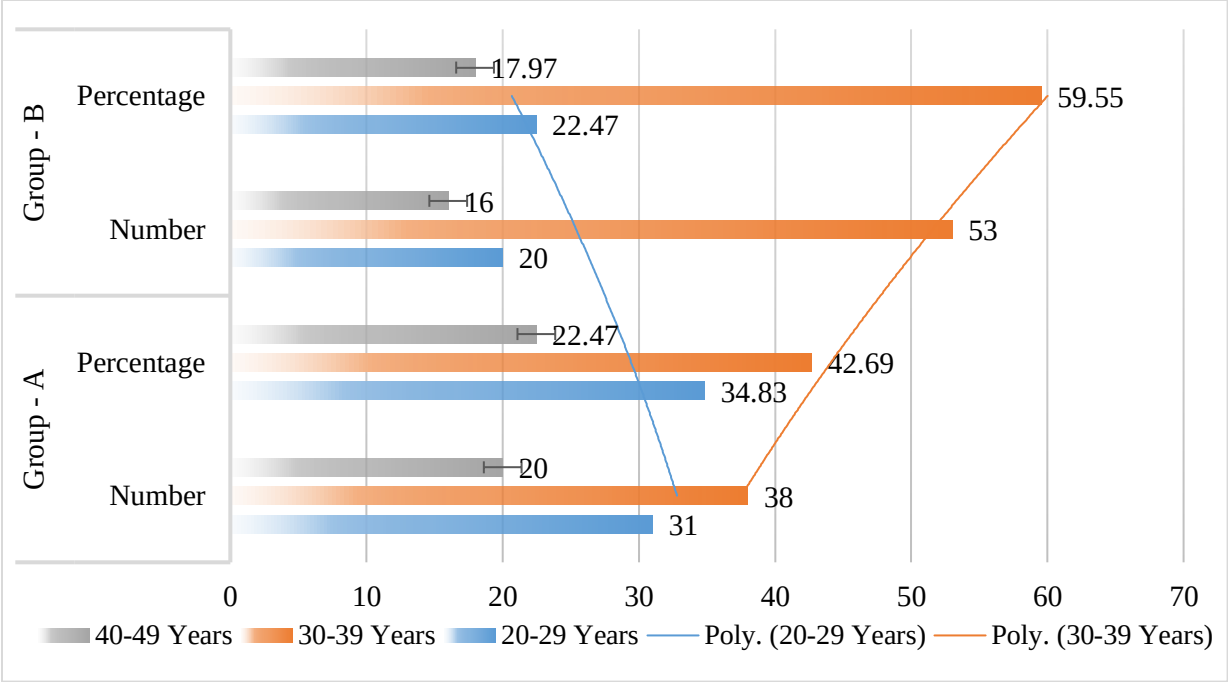


Table II: Mean Heart Rate (beats/minutes) in groups

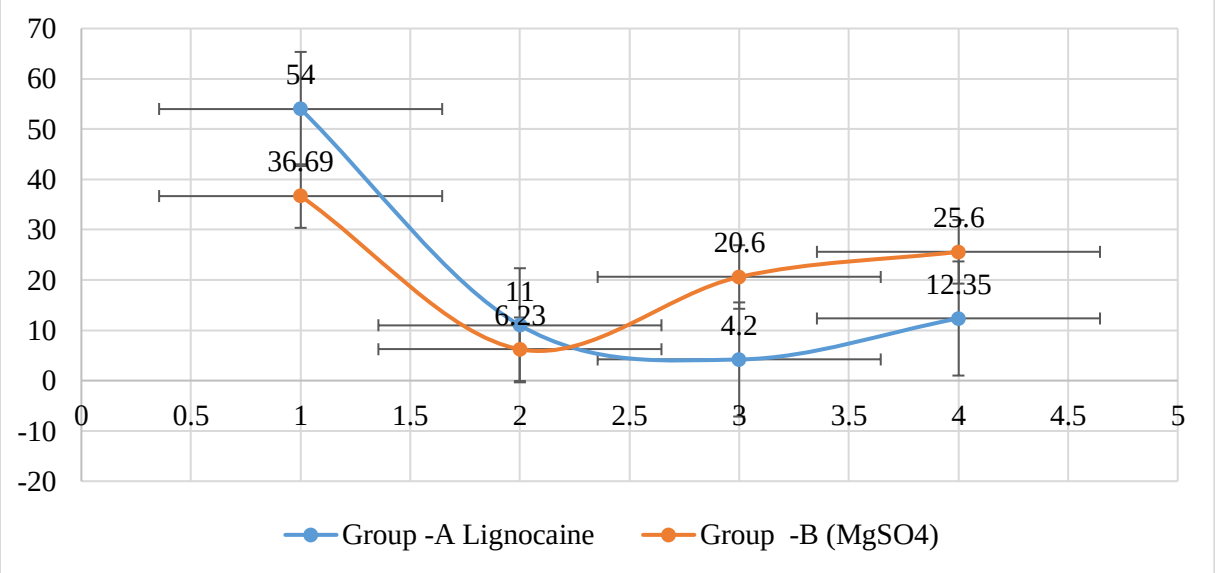
Table III: Mean arterial pressure (MAP) (mmHg) in both groups

Time (minutes)	**Group -A (Lidocain e)**	**Group -B ($MgSO_4$)**
Baseline	90±8.8	86.6±9.2
Post Induction	74.4 ± 8.8	69.3± 7.3
Post Intubation	71.9 ± 9.5	72.6± 8
2 minutes Post Intubation	69.5 ±8.5	68.6± 7.9
5 minutes Post Intubation	66.3 ± 6 .2	71± 7.4
Calculated P value at baseline and 5 minutes post intubation	0.001	0.042

Time (minutes)	**Group -A Lignocaine**	**Group -B $MgSO_4$**
Baseline	92 ±9.20	86.6± 7
Post Induction	80 ±7.98	85.6±12.9
Post Intubation	75 ±8.34	77.8±7.6
2 min Post Intubation	74±7.23	75.1±6.2
5min Post Intubation	69 ±6.6	72.4±5.9

Table IV: Efficacy of the both drugs

Out come Variable(Efficacy) Comparison at baseline and at 5 minutes post intubation values	**Group -A Lignocaine**	**Group -B ($MgSO_4$)**
20% reduction in **MAP(n=89) from baseline**	54%	36.69%
25% reduction in **Heart Rate (n=89) from baseline**	11%	6.23%
> 20% increase in **MAP** (n=89) **from baseline**	4.2%	20.6%
> 25% increase in HR (n=89) **from baseline**	12.35%	25.6%



DISCUSSION:

Endoscopy of layers and placement of flexible tubes often causes increase in blood pressure and heart rate. These responses are due to regulation of sympathetic adrenal discharge which may cause left ventricle failure, cerebral hemorrhage etc [12]. Catecholamine is released from both adrenergic nerve terminals and adrenal medulla and is inhibited by magnesium [12]. Peripheral vasodilation and cardiac depression are causes of reduction of reflex responses in lignocaine action mechanism [13]. From this study, it was evident that lignocaine did not prevent rise in BLS values in response to tracheal intubation and larynx endoscopy [13]. Hypotension was observed in patients who received 40 and 50mg/kg magnesium but minimum effects with 30mg/kg [14], Islam MS, Hussain MPA, Chowdhury MH, et al showed reduced effective response by magnesium sulphate on cardiovascular system [15]. Responses of lignocaine groups did not reduce to baseline at 5 minutes after larynx endoscopy and tube placement in trachea.

In 54% patients of group A, 20% reductions in Mean Arterial Pressures was observed and 36.69% reduction in heart rate from baseline values in 11% patients of Group A and 6.23% in that of group B. by comparison of baseline and 5 minutes past intubation values in both groups, it was known that significances level in group A, value of P was 0.001 and the value of P came to be 0.002. in group B, P values were 0.11 and 0.042. results were slightly changing with respect to reference studies [16].

CONCLUSION:

There is a clear difference between two groups in term of reduction of pressure response to tube placement in trachea and endoscopy of larynx. Lignocaine is more operative and productive than magnesium sulphate in this regard.

REFRENCES:

1. Nidhi B. Panda MD, Neerja Bharti DNB, Seema Prasad MD. Minimal effective dose of magnesium sulfate for attenuation of intubation response in hypertensive patients. Journal of Clinical Anesthesia; 2013: 25, 92-97.
2. Hossain MPA, Islam MS, Chowdhary MH, et al. Comparative study between efficacy of magnesium sulphate and lignocain in attenuating haemodynmic response to laryngoscopy and endotrachael intubation. Bangladesh JAFMC 2012;(8):278-81.
3. Jolliffe CT, Leece EA, Adams V, Marlin DJ. Effect of intravenous lidocaine on heart rate, systolic arterial blood pressure and cough responses to endotracheal intubation in propofol-anaesthetized dogs. Vet Anaesth Analg 2007;34:322-30
4. 4. Montazeri K, Fallah M. A Dose Response Study of Magnesium Sulfate in Suppressing Cardiovascular Responses to Laryngoscopy & Endotracheal Intubation, Journal of Research in Medical Sciences. 2005;10: 82-6.
5. Sharma J, Vikas S, Satyadev Gupta S. Comparative study of Magnesium Sulphate and Esmolol in Attenuating the Pressor Response to Endotracheal Intubation in Controlled Hypertensive Patients. J Anaesth Clin Pharmacol 2006; 22: 255.
6. Min JH, Chai HS. Attenuation of hemodynamic responses to laryngoscopy and tracheal intubation during rapid sequence induction: remifentanil vs. lignocaine with esmolol. Minerva Anestesiol 2010;76:188-92.
7. B, Ogurlu M, Gezer E, Nuri Aydin O, Gürsoy F. Effects of esmolol, lignocaine and fentanyl on haemodynamic responses to endotracheal intubation. Clin Drug Investig 2007; 27:269-77.
8. Kim JT, Shim JK, Kim SH, et al. Remifentanil versus lignocain for attenuating the haemodynamic response during rapid sequence induction using propofol: Double blind randomized clinical trial. Anaesth intensive care 2007; 35(1):20-3.
9. Tej Kaul, Veena Valecha. Catecholamine responses to Endotracheal intubation and Laryngeal Mask Airway Insertion. Indian J Anaesth 1999, 43; 30.
10. Durmus M, But AK, Erdem TB, Ozpolat Z, Ersoy MO. The effects of magnesium sulphate on sevoflurane minimum Original Article.
11. Jee D, Lee D, Yun S, Lee C. Magnesium sulphate attenuates arterial pressure increase during laparoscopic cholecystectomy. Br J Anaesth 2009 Oct; 103(4):484-9.
12. Dube L, Granry JC. The therapeutic use of magnesium in anesthesiology, intensive care and emergency medicine: a review. Can J Anesth 2003; 50: 732-46.
13. Saif Ghaus M, Vinita S, Kumar A, Wahal R. Bhatia V K, Agarwal J. A study of cardiovascular response during laryngoscopy and intubation and their attenuation by ultrashort acting b-blocker esmolol. Indian J Anaesth. 2002; 46 (2) : 104-106.
14. Elsharnouby1 NM, Elsharnouby MM. Magnesium sulphate as a technique of hypotensive anaesthesia. British Journal of Anaesthesia 2006:96 (6): 727-31.
15. Kim Woon, Young MD. Lidocaine does not prevent bispectral index increases in response to Endotracheal Intubation. J Anesthesia & Analgesia 2006;102:156-9.
16. 16. Telci L, Esen F, Akcora D, Erden T, Canbolat A T, Akpir K. Evaluation of effects of magnesium sulphate in reducing intraoperative anesthetic requirements. British Journal of Anaesthesia 2002; 89:594-602.