Vol 86-87 (1,2)

www.aaarnaccm.com

ISSN 0301-0368
Jan - Dec. 2020

159

INDIA

ASIAN ARCHIVES OF ANAESTHESIOLOGY AND RESUSCITATION

Indexed in: MedIndia, Indian Citation Index, HUG-Services d'anaesthesiologie, World cat, Research Bible, OpenMed, Indian Medical Journals

ASIAN ARCHIVES OF ANAESTHESIOLOGY AND RESUSCITATION

Office Address : Room No : 306 - 309, Department of Anaesthesia, 3rd Floor, BL Taneja Block
MAMC and LN Hospital, New Delhi (INDIA)

www.aaarnaccm.com

159

Asian Archives of Anaesthesiology and Resuscitaation

1971-2017

The Official Journal of "Anaesthesiology and Resuscitation Research Forum"

Vol 86-87 (1,2) Jan-Dec. 2020

CONTENTS

Published and Printed by Dir. Prof. U.C.Verma on behalf of Asian Archives of Anaesthesiology and Resuscitation,
Office Address : Room No.: 306-309, Department of Anaesthesia, 3rd Floor, BL Taneja Block, MAMC and LN Hospital, New Delhi
Mobile No.: 09646121503, 09868399699 E-mail : aaarjournal@gmail.com
Typeset and Printed at Creative Offset Press, 131 Patperganj Industrial Area, Delhi - 110092, Ph: 9136434848

ASIAN ARCHIVES OF ANAESTHESIOLOGY AND RESUSCITATION

Correspond : Asian Archives of Anaesthesiology and Resuscitation, Office Address : Room No. 306-309, Department of Anaesthesia, 3rd Floor, BL Taneja Block, MAMC and LN Hospital, New Delhi
E-mail: aaarjournal@gmail.com

National Association of Critical Care Medicine (India)

(Affiliated to the world Federation of Societies of Intensive & Critical Care Medicine

President - Dir. Prof. U.C. Verma
Vice President - Dir. Prof. Baljit Singh
G. Secretary - Prof. Manpreet Singh
Jt. Secretary - Dir. Prof. Rs. Rautela
Treasurer - Dr. Yashwant Singh

Office Address:
306- 309,DEPARTMENT OF ANAESTHESIA 3RD FLOOR, BL TANEJA BLOCK MAMC and LN HOSPITAL, NEW DELHI,INDIA
naccm2007@gmail.com
www.aaarnaccm.com

Photograph

LIFE MEMBERSHIP FORM

Dear Sir

I wish to become a member of National Association of Critical Care Medicine and my particulars are as follows

Name (Capital Letters) .....

Date of Birth .....

Under Graduation ..... (University/College) .....

Post Graduation ..... (University/College) .....

Official Address .....

.....

Correspondence Address .....

.....

Ph. No. (R).....Mobile.....email.....

Permanent Address: .....

.....

I am enclosing here with bank draft/cheque* for Rs. 2500/- (Two thousand five hundred only) towards my Registration for Life Membership of National Association of Critical Care Medicine.

I would abide by the constitution of National Association of Critical Care Medicine

* Rs. 155/- to be added if payment is through outstation cheque.

Cheque/Draft should be sent in favour of National Association of Critical Care Medicine, payable at New Delhi

Cheque/Cash..... Cheque No ..... Date ..... Amount .....

Dated..... Signature.....

Please send all the correspondence at the above mentioned address for which I would acknowledge the receipt.

National Association of Critical Care Medicine, Registered Society under Act XXI of 1860 Regd. No. 10874 Affiliated with World Federation of Societies of Intensive & Critical Care Medicine.

Exempted from Income Tax under Section 35 of Income Tax Act 1961 vide letter No. 1231 (F.N. DG/IT/E/ND/-81/35 (i), (22)/90/-IT (E) of 26-10-94 from Dept. of Revenue, Min. of Finance, Govt. of India (1.4.93-31.396)

A Rare Case of Double-chambered Right Ventricle

Sanchit Ahuja[1]

Abstract

Double-chambered right ventricle (DCRV) is a congenital heart disease and an rare cause of cardiac failure. In this pathology muscle band divides the right ventricle into two separate cavities, causing obstruction of blood flow. Echocardiography is useful method for the diagnosis of this pathology. Due to the rarity of this condition and the chances of missing the diagnosis, we inform this case in view to highlight the rarity of this congenital heart disease in childhood. An 13 year old patient with double-chambered right ventricle presented with a history of recurrent fever, chronic cough, loss of appetite, loss of weight, breathlessness,. On presentation, she had features of respiratory tract infection. A complete diagnosis was initially missed with routine investigations later diagnoses were made on transthoracic 2-D echocardiography with colour Doppler. After the confirming the diagnoses, patient was referred for surgical correction to cardio thoracic and vascular surgery department.

Key words: Echocardiography, double chambered right ventricle, Fever, cough.

CASE REPORT

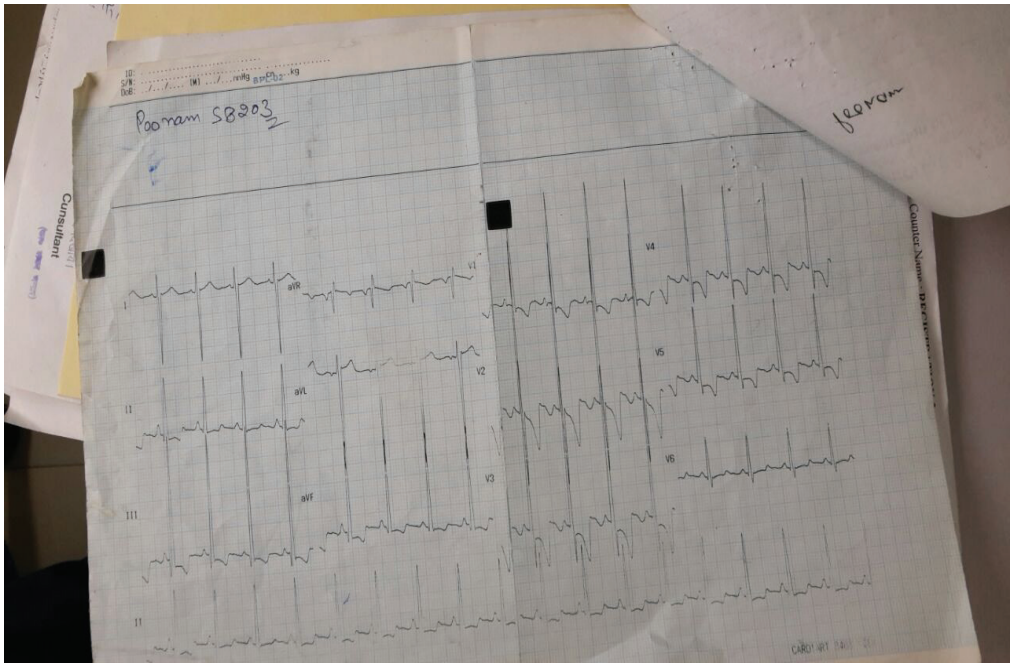
A 13 year-old female patient was admitted to the Emergency of Ram Manohar Lohia institute of medical sciences Lucknow,India . Presented with chief complains of recurrent fever with chills, chronic cough, loss of appetite, loss of weight and breathlessness. A year earlier she had been miss diagnosed with chest infection due to mycobacterium by community health physician. She was on anti tubercular treatment (ATT) for one year .she was not cured by ATT. She had been suffering from dyspnoea, cough and fever with chills for the last one year , but the severity of the dyspnoea and other symptoms had increased in and leading up to her admission in Emergency . On her physical examination, there was no cyanosis, the lungs were normal with auscultation, heart rate was 65 bpm, and noninvasive blood pressure was 90/60 mmHg. At cardiac examination , a systolic murmur was heard at the left side of sternal border. There were no pallor, icterus, cyanoses, oedema, ascitis, clubbing, lymphadenopathy. The blood gas analysis was normal, and the blood glucose and electrolyte levels were also within normal ranges. Her electrocardiography (ECG) findings revealed sinus rhythm, right axis deviation. Chest X-ray was normal. Tran thoracic echocardiography was done to making the diagnosis and it showed RV hypertrophy and a muscular septation inside the RV. RV outflow tract and pulmonary valve were normal with mild-to-moderate tricuspid

Corresponding author:
Sanchit Ahuja
Clinical research fellow, Cleveland Clinic Foundation
USA

regurgitation. Fever was managed by intravenous broad spectrum antibiotics and paracetamole Drip according to body weight.

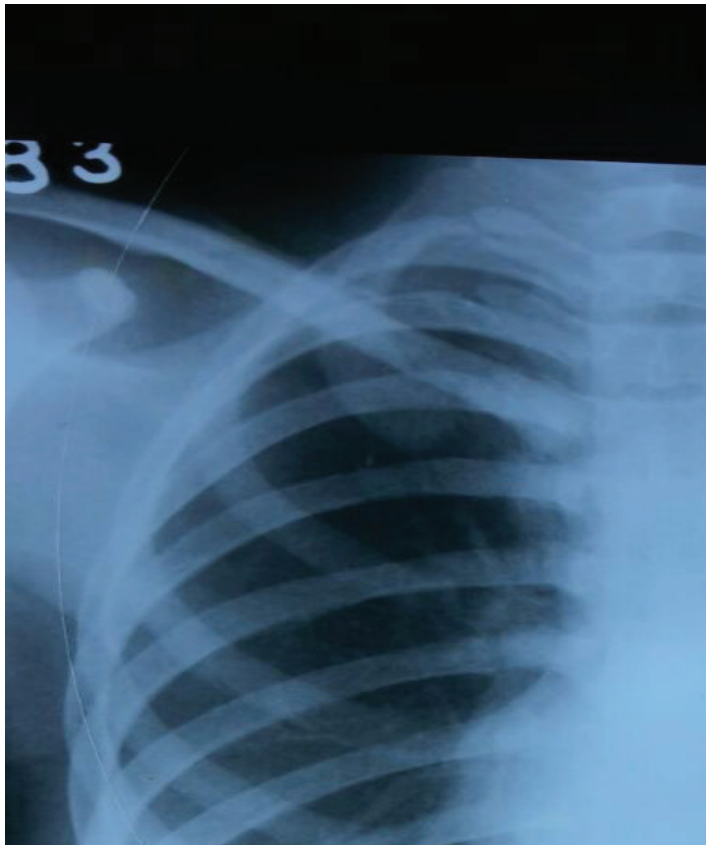
DISCUSSION

Double-chambered right ventricle (DCRV) is a rare congenital disorder. It makes up 0.5-2% of all congenital heart diseases and is often misdiagnosed. Forster and Humphries[1] reported only one case in 36,000 general autopsies, whereas there was a 1-2.6% incidence of other congenital diseases in their study. In DCRV, the right ventricle is divided into the high-pressure proximal and low-pressure distal chambers along with two pressure zones by a muscular band, It is considered to be a form of right ventricular (RV) outflow tract obstruction[2] . Other cardiac anomalies frequently accompany DCRV; therefore, patients with this disease must be examined carefully for the presence of defects such as ventricular septal defects and pulmonary valve stenosis.[3] However, our patient had isolated DCRV. Patients with DCRV usually have symptoms like chest pain, dyspnea, and syncope, and our patient was no exception.[4]Most of time , diagnosis of DCRV is not a easy task . DCRV screening should be required , if there is an rare cause of cardiac failure . Hachiro et al.[5] defined the criteria for diagnosis of DCRV as the following: the demonstration of a systolic pressure gradient in the RV cavity during RV catheterization, the visualization of the obstruction under the RV infindubulum caused by an abnormal muscle band, the absence of infundibular hypoplasia, and the direct visualization of an intracardiac muscle band during surgery.[5] In our case, we were able to demonstrate intraventricular obstruction by transthoracic echocardiography. McElhinney et al.[6] suggested surgical correction in asymptomatic DCRV patients with a high intracavitary pressure gradient. In conclusion, DCRV is usually seen in childhood and frequently is accompanied by cardiac disorders. Therefore, when there is an unexplained aetiology Tricuspid regurgitation and cardiac failure, screening for DCRV should be conducted so that right treatment options can be explained to patients and her relatives.



ECG

Patient with dual chamber right ventricle



X Ray Chest

Declaration of conflicting interests: The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding: The authors received no financial support for the Research and/or authorship of this article.

REFERENCES

1. Forster JW, Humphries JO. Right ventricular anomalous muscle bundle. Clinical and laboratory presentation and natural history. Circulation 1971;43:115-27.
2. Lascano ME, Schaad MS, Moodie DS, Murphy D Jr.Difficulty in diagnosing double-chambered right ventricle inadults. Am J Cardiol 2001;88:816-9.
3. Romano MM, Furtado RG, Dias CG, Jurca M, Almeida-Filho OC, Maciel BC. Double-chambered right ventricle in an adult patient diagnosed by transthoracic echocardiography. Cardiovasc Ultrasound 2007;5:2.
4. Sarikouch S, Schaeffler R, Blanz U, Sandica E, Beerbaum P. Adult congenital heart disease - double-chambered right ventricle. Clin Res Cardiol 2007;96:582-4.
5. Hachiro Y, Takagi N, Koyanagi T, Morikawa M, Abe T.Repair of double-chambered right ventricle: surgical results and long-term follow-up. Ann Thorac Surg 2001;72:1520-2.
6. McElhinney DB, Chatterjee KM, Reddy VM. Double chambered right ventricle presenting in adulthood. Ann Thorac Surg 2000;70:124-7.

Comparison of Fentanyl with Dexmedetomidine for Smooth Extubation: A Clinical Study

Vibhor Rai[1], Akhilesh Mishra[2]

Abstract

This double-blind, randomized, controlled study was done in patients undergoing surgery under general anesthesia belonging to (ASA) physical status 1 or 2 to compare the effects of fentanyl 1 µg/kg and dexmedetomidine 0.75 µg/kg in attenuating airway and circulatory reflexes during emergence and extubation of the endotracheal tube. Study drug was given 15 min before the end of surgery as an infusion and over 15 min post extubation. Hemodynamic parameters and patient response for laryngoscopy and oral suctioning and during extubation were graded. Dexmedetomidine was found to produce hypotension at 5 min of drug infusion and improved with fluid bolus; HR was stable throughout the study period. Extubation quality was found to be superior in dexmedetomidine group with patients arousable and tolerating suctioning and extubation. Whereas in fentanyl group, patients were awake during extubation and had tachycardia after extubation.

Keywords: Fentanyl, Dexmedetomidine, Extubation

INTRODUCTION

Many theories have been described for sudden exaggerated haemodynamic response during intubation and extubation such as release of catecholamines,[1] extubation can be associated with detrimental airway and hemodynamic responses. Easy extubation requires the absence of straining, movement, coughing, breath holding and laryngospasm.[2] airway irritation, intense pain following surgery, and emergence. other drugs are used to attenuate the intubation response such as intravenous lignocaine,[3]opioids such as

Affiliation

Department of Anaesthesia & Critical Care,
Saraswati Institute of Medical Sciences,
Pilakhuwa, Hapur (U.P)

Corresponding author

Dr. Vibhor Rai
Assistant Professor
Department of Anaesthesia & Critical Care,
Saraswati Institute of Medical Sciences, Pilakhuwa, Hapur (U.P)
Email- dr.vibhor.rx@gmail.com

fentanyl and remifentanil,[4,5]esmolol,[6]labetalol,[7] intratracheal local anesthetic instillation,[8] dexmedetomidine[9] which can be used during extubation also. Many research has been done to attenuate hemodynamic responses to intubation, but the same care and precautions are seldom carried out for extubation. The aim of this study was to compare the effect of sedation with single-dose dexmedetomidine and fentanyl on the attenuation of circulatory and airway response to endotracheal extubation.

METHODOLOGY

After Institutional Ethical Committee approval and written informed consent from patients, this double-blind, randomized, prospective clinical trial was carried out over a period of 6 months on fifty patients of American Society of Anesthesiologists (ASA) Grades 1 and 2 of both male & female sex , aged above 18 years undergoing surgery under general anesthesia. Patients randomization were done into two groups by sealed envelope technique; Group D received dexmedetomidine 0.7 µg/kg and Group F received fentanyl 1 µg/kg.

Patients with upper respiratory tract infection and those required intra-operative nasogastric tube were excluded from the study.

All patients were premedicated with oral alprazolam 25 mcg in the night and tablet Ranitidine 150 mg in the morning of the surgery. On the operating room table, after securing an intravenous access, injection midazolam 1.5 mg and injection ondansetron 4 mg were given. Base line hemodynamic parameters such as HR, BP, oxygen saturation were recorded with a multiparameter monitor. All participants were anesthetised using standard anesthesia technique. All patients were induced with propofol 2 mg/kg, morphine 0.1 mg/kg. Tracheal intubation was done using vecuronium (loading dose of 0.1 mg/kg, intermittent bolus of 0.02 mg/kg) and anesthesia was maintained on O_2:N_2O (0.5 L: 0.5 L) and isoflurane 2 % dial concentration adjusted to maintain minimum alveolar concentration to 1 % . An additional dose of morphine was given depending on hemodynamics. Isoflurane stopped fifteen minutes before expected last surgical suture, isoflurane was stopped, and equal amount of test solution (10 ml) was given over a period of 5 min by infusion pump. The test solution was prepared by anesthesiologist who was not involved in the study. Five minutes after the infusion, the patient was reversed from muscle relaxant effect with injection neostigmine 50 µg/kg and glycopyrrolate 10 µg/kg. Hemodynamics was assessed at every 2 minutes for first 10 minutes then every 5 min interval from the time of study drug administration up to 15 min after extubation. The level of sedation during suction and extubation was assessed using Ramsay sedation scale [Table 1]. The level of sedation during suction was assessed, and airway response under direct laryngoscopy to suction was noted by five-point scale [Table 2]. After 5 min interval, the level of sedation was assessed, and smoothness of extubation was noted by four-point scale [Table 3]. When mean arterial BP fall more than 10% of baseline value, 150 ml fluid bolus was given, and injection mephentermine was supplemented intravenously if there was no improvement. Drop in HR more than 20% from baseline was treated with injection atropine 0.6 mg intravenously.

Table 1
Observer Assessment Sedation Score

Observation	*Score*
Responds readily to name spoken in normal tone	5
Lethargic response to name spoken in normal tone	4
Reponds only after name is called loudly/ repeatedly	3
Responds only after mild prodding or shaking	2
Does not respond to mild prodding or shaking	1

Table 2
Grading of Airway Reflexes

Grade	*Description*
1	Excellent (breathing well, no response to laryngoscopy, and suctioning)
2	Good (breathing well, minimal grimacing response to laryngoscopy and suction
3	Satisfactory (breathing well, coughing attempt to laryngoscopy and suction)
4	Poor (breathing well, coughing on tube during laryngoscopy)
5	Very poor (coughing on tube with breath holding)

Table 3
Smoothness of Extubation

Grade	Description
1	No coughing on endotracheal tube
2	Coughing on tube
3	Vomiting
4	Laryngospasm

Statistical Analysis

Based on our study, 13% difference in HR and BP between baseline and extubation between two groups was observed. For α 0.06 and β 75%, 23 patients per treatment group were needed. Assuming a 7% dropout rate, fifty patients (25 patients per group) were recruited for the study.

data Statistical analysis is done using Statistical Package for Social Sciences (SPSS Version 19, IBM Corporation, Armonk, North Castle, New York, United States). Statistical analysis was done using paired-samples t-test for between group comparisons. The Chi-square test was used to analyze extubation quality, sedation scores, and adverse events. P < ٠,٠٥ was considered as statistically significant.

RESULTS

Age, weight, gender, airway, and ASA physical status were comparable in both groups. The total dose of morphine consumed by the patients was not statistically significant [Table 4].

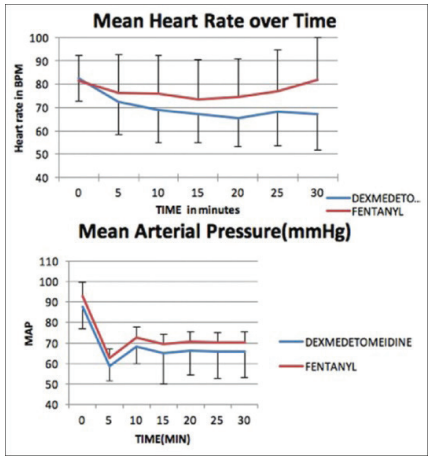
Table 4
Demographic Data and
Total Morphine Consumption

Parameters	*Dexmedetomidine*	*Fentanyl*	*P*
Age-mean (95% CI)	34.86 (30.27-42.88)	38.24 (33.07-43)	0.356
Gender (male:female)	13:12	8:15	0.136
MPC* (1/2)	11/14	8:17	0.144
ASA*(1/2)	19/2	19/2	1.2
Weight-mean (95% CI)	57.64 (51.46-59.33)	61.84 (57.34-66.02)	0.156
Morphine consumption	6.54 (6.21-7.8)	6.73 (6.31-7.44)	0.811
Mean (95% CI)			

*Mallampatti class, *American Society of Anaesthesiologist, CI= Confidence interval

Decrease in HR shown in both the groups , from the time of test drug administration to extubation. However, dexmedetomidine produced a significant drop in HR when compared to fentanyl. Increase in HR in fentanyl group seen post extubation [Figure 1].

Figure 1
Hemodynamic variations over time



Reduction in BP was observed in both groups at 5 min post drug administration, which improved with fluid bolus and was maintained within 10% of baseline value throughout. [Figure 1].

Dexmedetomidine group patients showed greater degree of sedation during suctioning of airway and extubation when compared to fentanyl. Dexmedetomidine group patients was arousable but not awake post extubation but fentanyl group patients was awake. That is the reason that there HR was increased post extubation [Figures [Figures 2 and 3].

Figure 2

Level of Sedation and Grading of Smoothness during Extubation

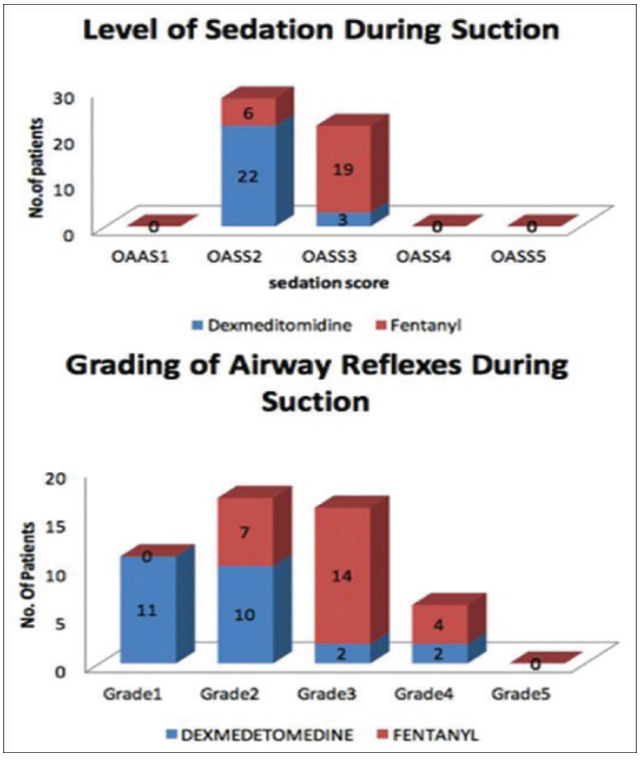


Figure 3

Level of Sedation and Grading of Airway Reflexes during Suction

Dexmedetomidine group patients in larger number tolerated laryngoscopy and suction. In both groups, none of the patients had breath holding or difficulty in tolerating the endotracheal tube [Figure 3].

DISCUSSION

Recouping from anesthesia regularly brings about hoisted haemodynamic parameters because of catecholamine focus following soporific withdrawal which is additionally irritated by laryngeal control happening amid extubation. Dexmedetomidine, a strong alpha-adrenoceptor agonist, diminish the thoughtful surge and noradrenergic movement accordingly neutralizing the hemodynamic variance happening at the time of extubation,[9] and fentanyl is a demonstrated medication to lessen the intubation and extubation reaction. We analyzed the impacts of dexmedetomidine and fentanyl in constriction of hemodynamic and airway reflexes amid rise and extubation.

Dexmedetomidine initiates receptors in the medullary vasomotor focus, lessening norepinephrine turnover and diminishing central sympathetic outflow, resulting in alterations in sympathetic function and decreased HR, and BP. In our study, patients of both groups showed drop in HR and BP all through the examination time frame. On correlation between the groups, dexmedetomidine assemble demonstrated a critical drop in BP at 5 min interim after medication organization and enhanced with liquid boluses. Kothari et al.[10] looked at lignocaine and dexmedetomidine and watched that solitary measurements of dexmedetomidine 0.5 µg/kg given 5 min before extubation delivered better weakening of hemodynamic reaction in craniotomy patients. Nonetheless, Sharma et al.[11] found an expansion in mean arterial pressure for initial 3 min in dexmedetomidine group which might be because of bolus medicate organization impact

and diminished from standard incentive after 5 min.

Central stimulation of parasympathetic outflow and inhibition of sympathetic outflow from the locus ceruleous in the brainstem plays a prominent role in the sedation and anxiolysis produced by dexmedetomidine. There was increase in HR and BP in fentanyl group after extubation when compared to dexmedetomidine group which could be attributed to good sedation score provided by dexmedetomidine than fentanyl. Aksu et al.[12] also found similar hemodynamic response of increase in HR and BP after the extubation of rhinoplasty patients in fentanyl group when compared with 0.5 μg/kg dexmedetomidine.

Kim and Bishop [13] discovered 76% occurrence of coughing during emergence. coughing can bring about hypertension, tachycardia, increases intraocular and intracranial tension, myocardial ischemia, bronchospasm, and surgical bleeding.[14] In our investigation, dexmedetomidine group demonstrated better airway response during laryngoscopy and oral suctioning when contrasted with fentanyl which connected well with better sedation score in dexmedetomidine group. The smoothness of extubation was equivalent between the two groups. Guler et al. watched that solitary dosage of dexmedetomidine 0.5 μg/kg when given 5 min before extubation encouraged resilience of endotracheal tube and altogether diminished coughing during extubation without influencing the development time.[15]

Fan et al. did a comparative report contrasting remifentanil and two measurements of dexmedetomidine 0.5 μg/kg and 0.7 μg/kg for otology surgery and watched that higher rate of patients in dexmedetomidine groups had smooth extubation in regards to the nonappearance of bucking and coughing during head surgical dressing.[16] They likewise watched that occurrence of postoperative nausea and vomiting was less with dexmedetomidine group.

To rule out the morphine enhancing the sedation effects during extubation, we observed total morphine consumption during the intra-operative period in both the groups and found to be comparable between the two groups.

Aside from measurably huge drop in BP at 5 min of medication organization which reacted to liquid bolus in the dexmedetomidine assemble there were no unfriendly symptoms amid the examination time frame. Both groups had a similar duration of recovery from anesthesia without delay in emergence. Dexmedetomidine 0.75 μg/kg given over 15 min before extubation enabled smooth extubation of the trachea and provided adequate sedation postoperatively with increase in the incidence of bradycardia and hypotension.[17]

Limitations

We examined the single dosage of dexmedetomidine and fentanyl for attenuation of hemodynamic and airway reflexes. A dose response study might be valuable in deciding the suitable dosage of the examination drugs. Second, five guide airway reaction toward suction under direct laryngoscopy and airway reaction to extubation have not been approved.

CONCLUSION

Single-dosage dexmedetomidine 0.75 μg/kg given 15 min before extubation created better attenuation of airway reaction to laryngoscopy and airway suctioning. This resulted in smooth tracheal extubation without prolonging recovery when compared to fentanyl.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Lowrie A, Johnston PL, Fell D, Robinson SL. Cardiovascular and plasma catecholamine reactions at tracheal extubation. Br J Anaesth. 1992;68:261–3. [PubMed]
2. Cranfield KA, Bromley LM. Least alveolar convergence of desflurane for tracheal extubation in profoundly anesthetized, unpremedicated youngsters. Br J Anaesth. 1997;78:370–1. [PubMed]
3. Gefke K, Andersen LW, Friesel E. Lidocaine given intravenously as a suppressant of cough and laryngospasm regarding extubation after tonsillectomy. Acta Anaesthesiol Scand. 1983;27:111–2.[PubMed]
4. Nishina K, Mikawa K, Maekawa N, Obara H. Fentanyl constricts cardiovascular reactions to tracheal extubation. Acta Anaesthesiol Scand. 1995;39:85–9. [PubMed]
5. Aouad MT, Al-Alami AA, Nasr VG, Souki FG, Zbeidy RA, Siddik-Sayyid SM. The impact of low-measurement remifentanil on reactions to the endotracheal tube during rising up out of general anesthesia. Anesth Analg. 2009;108:1157–60. [PubMed]
6. Lim SH, Chin NM, Tai HY, Wong M, Lin TK. Prophylactic esmolol mixture for the control of cardiovascular reactions to extubation after intracranial surgery. Ann Acad Med Singapore. 2000;29:447–51. [PubMed]
7. Muzzi DA, Black S, Losasso TJ, Cucchiara RF. Labetalol and esmolol in the control of hypertension after intracranial surgery. Anesth Analg. 1990;70:68–71. [PubMed]
8. Jee D, Park SY. Lidocaine splashed down the endotracheal tube weakens the airway-circulatory reflexes by nearby anesthesia during development and extubation. Anesth Analg. 2003;96:293–7. [PubMed]
9. Jain D, Khan R, Maroof M. Impact of dexmeditomidine on stretch reaction to extubation. Web J Anaesthesiol. 2008;21:21–2.
10. Kothari D, Tandon N, Singh M, Kumar A. Attenuation of circulatory and airway reactions to endotracheal extubation in craniotomies for intracerebral space possessing sores: Dexmedetomidine versus lignocaine. Anesth Essays Res. 2014;8:78–82. [PMC free article] [PubMed]
11. Sharma VB, Prabhakar H, Rath GP, Bithal PK. Examination of dexmedetomidine and lignocaine on attenuation of airway and pressor reactions during tracheal extubation. J Neuroanaesth Crit Care. 2014;1:50–5.
12. Aksu R, Akin A, Biçer C, Esmaoglu A, Tosun Z, Boyaci A. Examination of the impacts of dexmedetomidine versus fentanyl on airway reflexes and hemodynamic reactions to tracheal extubation during rhinoplasty: A twofold visually impaired, randomized, controlled investigation. Curr Ther Res Clin Exp. 2009;70:209–20. [PMC free article] [PubMed]
13. Kim ES, Bishop MJ. Cough during rising up out of isoflurane anesthesia. Anesth Analg. 1998;87:1170–4. [PubMed]
14. Stone DJ, Gal TJ. Airway administration. In: Miller RD, proofreader. Course book of Anesthesia. fifth ed. Philadelphia: Churchill Livingstone Co; 2000. pp. 1414–51.
15. Guler G, Akin A, Tosun Z, Eskitascoglu E, Mizrak A, Boyaci A. Single-measurement dexmedetomidine lessens airway and circulatory reflexes during extubation. Acta Anaesthesiol Scand. 2005;49:1088–91. [PubMed]
16. Fan Q, Hu C, Ye M, Shen X. Dexmedetomidine for tracheal extubation in profoundly

anesthetized grown-up patients after otologic surgery: A correlation with remifentanil. BMC Anesthesiol. 2015;15:106.[PMC free article] [PubMed]

17. Bindu B, Pasupuleti S, Gowd UP, Gorre V, Murthy RR, Laxmi MB. A twofold visually impaired, randomized, controlled trial to think about the impact of dexmedetomidine on hemodynamic and recuperation reactions during tracheal extubation. J Anaesthesiol Clin Pharmacol. 2013; 29:162–7. [PMC free article] [PubMed]

Airtraq with Adaptor for Infant with Failed Intubation in Cleft Lip and Cleft Palate Surgery: Guardian Angel of Emergency

Rushda Rahman[1], Hassan A Rashid[2], Shahna Ali[3], Manazir Athar[3]

Abstract

Paediatric airway management is a challenging procedure due to a variation in their anatomy and physiology, lack of dedicated airway management protocols as well as limitations of the various devices and instruments like, fiber optic bronchoscope and video-laryngoscope. We report an interesting case of an eight month old infant with cleft lip -cleft palate with a history of failed intubation with conventional miller and Macintosh laryngoscope after 3 attempts and severe bradycardia following which surgery was deferred. The infant was successfully intubated in first attempt using Airtraq® optical laryngoscope with adaptor. In resource limited area and poor set ups where paediatric video-laryngoscopes or fiber optic device is not available, Airtraq® optical laryngoscope with adaptor is a boon and savior.

Keywords: Airtraq® optical laryngoscope, cleft lip, cleft palate.

Introduction

Cleft lip-palate is the commonest cranio-facial birth defects of complex etiology resulting in disruptions of normal facial structure. The defect involves disruption of the tissue planes above lip spreading out into the nose and/ or the palate (hard and/or soft).[1]

In 2008, cleft lip (CL) - cleft palate (CP) were included by world health organization (WHO) in their global burden disease (GBD), since these birth defects contribute to significant infant mortality and childhood morbidity. The related facial disfigurement causes difficulties in the development of eating, speech, and dental

Corresponding author:

Department of Anaesthesiology and Critical Care,
J. N. Medical College,
AMU, Aligarh, India

1. Junior Resident
2. Senior Resident
3. Assistant Professor

Address for Correspondence
Dr Shahna Ali
Assistant Professor
Department of Anaesthesiology and Critical Care
J.N.Medical College, AMU, Aligarh
E mail : drshahna.farhan@gmail.com

development, and imparts serious psychosocial effects if cleft surgery is neglected until adulthood.

Clefts are not only a surgical problem but requires a coordinated approach of several specialists. It makes airway management a significant anaesthetic challenge, due to poor paediatric assessment tools, scarcity of management protocols, as well as limitations of various devices, instruments, video-laryngoscopes and fiber optic device. In developing countries obtaining such costly devices is again a challenge.

The paediatric Airtraq® optical laryngoscope is an airway device which facilitates tracheal intubation in infants having both normal as well as difficult airways. A software (Airtraq Mobile by Airtraq) that enables live visual representation of the intubation procedure has been made available freely for smart phones (Android /iPhone). It operates with a specially built Smartphone Adapter (Figure 01).

We report a case of an eight month old infant with cleft lip cleft palate with a history of failed intubation with conventional laryngoscope after 3 attempts.

Case Report

An eight month old boy, first of non-consanguineous marriage presented with complaints of defect of upper lip and palate with a history of failed intubation with conventional laryngoscope (Miller and McIntosh). Patient was posted for cheiloplasty (Figure 02).

Pre-anaesthetic evaluation was done. Patient was full term normal delivery with no history of repeated upper respiratory tract infection (URTI) and regurgitation. Immunization was complete till date.

On examination patient had left complete CL-CP, blood pressure of 86/48 mmHg, heart rate 146/min, respiratory rate of 22/min, weight of 9 kg and SpO_2 of 100% on air was recorded. General Systemic examination revealed no abnormality. Laboratories studies - complete blood count, electrolytes, renal function test and liver function test were within normal limit. 2D Echo and chest x-ray were normal. Airway assessment was done by Colorado Paediatric Airway Score (COPUR).[2] It was 12; Anticipated difficult.

The anaesthesia plan was general anaesthesia with endotracheal tube (ETT) using Airtraq® optical laryngoscope with adaptor preserving spontaneous respiration. For plan B age and weight appropriate SGA (I Gel) was prepared. The surgeon was advised to keep surgical airway ready. The patient was advised NPO as per standard guidelines. On the morning of surgery, an intravenous line was secured with 24G cannula in preoperative room and inside the operation theatre monitors (pulse oximetry, electrocardiogram (ECG), non-invasive blood pressure, and temperature) were attached. Premedication was done with Atropine 0.02mg/kg intravenously (IV), Dexamethasone 0.5mg/kg IV and Fentanyl 2mcg/kg IV. Preoxygenated with 100% O_2 for 3 min. and induced with Sevoflurane 8% in 100% oxygen (O_2). When the pupils diverged the inspired concentration was decreased to 4%. End point of induction was marked by Centralization of eyeballs and lack of hemodynamic response to jaw thrust. Oro-tracheal intubation was done with size 3.5 uncuffed ETT using Airtraq® optical laryngoscope size zero (0) with adaptor in single attempt and intubation was confirmed with capnography and bilateral chest auscultation (figure 03).

Throat packing was done and anaesthesia maintained with O_2 (50%) and N_2O (50%) and Sevoflurane with intermittent injection Atracurium IV. Intraoperative course was uneventful . Infraorbital nerve block was done for post op analgesia. Patient was reversed with Inj. Neostigmine(0.04mg/kg) IV + Inj Glycopyrrolate (0.01mg/kg) IV. Patient with stable vitals was shifted to HDU for further monitoring.

Discussion

Cleft lip - cleft palate surgery is a significant anaesthetic challenge, where the surgical field is shared with the surgeon. Paediatric group includes other challenges i.e. large occiput, large tongue, and small glottis with high placed vocal chords, floppy epiglottis and high arched palate. Physiologically they are different from adult due to small apnoea period, decrease functional residual capacity (FRC), increase rate of airway obstruction.

In cleft lip and palate surgery throat pack, blood clots in airway, reduce pharyngeal tone and laryngeal oedema, all lead to increased risk of laryngospasm and bronchospasm. Effectively securing the airway takes precedence in these patients.

To serve the above demanding situation there is a requirement of video-laryngoscope and fibreoptic devices. These are costly devices and being in a developing country availability of age appropriate devices are not possible in every set up. However, Airtraq® designed on the principal of optical laryngoscope technology can be used as a primary device or a rescue intubating device in emergency as it is easily available and less expensive.[3]

Airtraq® has a guide conduit on the side to load the ETT. Adaptor connected to the Airtraq® has an option for focus, snapshot, recording, editing, video library and sharing.[4]

When compared to direct laryngoscopy, Airtraq provided easier and quicker visualization of the glottic view. Being an indirect laryngoscope it neither requires direct line of sight, nor need to displace the tongue and sniffing position.[5]

Figure 1
Airtraq with ETT

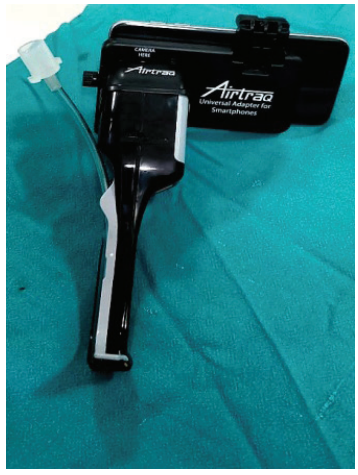


Figure 2
Patient with Cleft Palate

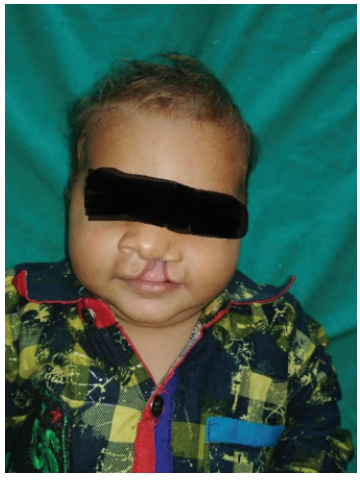


Figure 3
Oro-tracheal intubation was done with size 3.5 Uncuffed ETT using Airtraq® optical laryngoscope size zero (•) with adaptor

Conclusion

Airtraq® optical laryngoscope with adaptor may be a feasible alternative to video laryngoscopy in paediatric patients, especially in the developing countries. The benefits are that it operates with ease of assistance and guidance as visual laryngoscope.

Reference

1. Kwari D Y, Chinda J Y, Olasoji H O, Adeosun O O. Cleft lip and palate surgery in children: Anaesthetic considerations. Afr J Paediatr Surg 2010; 7(3):174-177.
2. Kheterpal S, Martin L, Shanks AM, Tremper KK. Prediction and outcomes of impossible mask ventilation: a review of 50,000 anesthetics. Anaesthesiology 2009; 110:891-897.
3. Holm-Knudsen R. The difficult pediatric airway – a review of new devices for indirect laryngoscopy in children younger than two years of age. Pediatr Anesth 2011; 21(2):98–103.
4. D Low, B York, MJ Eisses. A novel use for the Apple (4thgeneration) iPod Touch in the operating room. Anaesthesia 2011;66(1):61–62.
5. White MC, Marsh CJ, Beringer RM, et al. A randomised, controlled trial comparing the Airtraq optical laryngoscope with conventional laryngoscopy in infants and children. Anaesthesia 2012;67:226–231

Attenuation of Pressure Response to Direct Laryngoscopy and Endo-Tracheal Intubation – A Comparative Study between Morphine Sulphate and Fentanyl Citrate

Jayshree Thakkar[1], Amita Jansari[2], Rekha Solanki[3], Nileshgiri Gauswami[4], Twinkle Patel[5] , Bipin Patel[6]

ABSTRACT

The pressure response to laryngoscopy and endotracheal intubation would be dangerous in patients with cardiovascular or cerebral disease which increases risk of morbidity and mortality from tachycardia, hypertension and arrhythmia. This study is designed to compare the safety and efficacy of intravenous morphine sulphate and fentanyl citrate in attenuation of hemodynamic response during laryngoscopy and intubation.

Total of 50 patients of ASA I and II between 18-65 years were selected and divided two groups. Group I (inj. morphine sulphate 0.15 mg/kg IV) and Group II (inj. fentanyl citrate 4 mcg/kg IV). Heart rate, blood pressure, ECG were monitored continuously and recorded before and after giving the study drug, after intubation at 1,2,3,4,5,6,7,10th,30thminutes and 1,2,3,4,5 and 6th hour post operatively. Fentanyl is highly effective in attenuation of heart rate and blood pressure response as compared to morphine sulphate following laryngoscopy and intubation which is statistically significant (P value-<0.05). Mean HR in fentanyl group is 77.8bpm while 92.68 in morphine group. Mean SBP is 110.88 mm of hg, mean DBP is 63.8 mm of hg, MBP is 79.49 mm of hg in fentanyl group while mean SBP is 116.76 mm of hg, mean DBP is 69.56 mm of hg, MBP is 85.29 mm of hg in morphine group. No major complications have been observed during study except hypotension in 2 patients, bradycardia in 3 patients. None of the patient had respiratory depression.

1. Professor
2. Junior Lecturer
3. Assistant Professor
4. Ex Resident
5. 1st Year Resident

Professor and Head of Department
Department Of Anesthesia, GCRI, Asarva, Ahmedabad-380016

Corresponding Author:
Amita Jansari
A/8, Pathey Flat, near circuit house,
Shahibaug, Ahmedabad-380004
Mobile: 9879778701
Email: dramitajansari@gmail.com

Fentanyl citrate is more effective than morphine sulphate in attenuation of pressure response following direct laryngoscopy and endotracheal intubation.

KEY WORDS: Fentanyl citrate, hemodynamic response, morphine sulphate, intubation

INTRODUCTION

Direct laryngoscopy and endotracheal intubation in anesthetized patients are known to induce clinical changes in hemodynamic variables. Direct laryngoscopy produces marked short term stress response with detrimental effects on coronary and cerebral circulation in high risk patients, particularly in those with systemic hypertension, coronary artery or cerebrovascular diseases.[1,2] Tracheal intubation causes increase in catecholamine concentrations and a reflexive rise in sympathetic activity. This reaction is not prevented by regular premedication. [3, 4,5] Various drug regimens and techniques have been used from time to time for attenuating stress response to laryngoscopy and intubation including opioids, barbiturates, benzodiazepines, beta blockers, calcium channel blockers, vasodilators, etc.[6,7,8] Opioids in adequate doses have been commonly used to prevent hemodynamic response at laryngoscopy and intubation.[9]

In our study morphine sulphate and fentanyl citrate have been used for attenuation of sympathoadrenal stimulation caused by tracheal intubation. Opioids are effective in blunting pressure response to laryngoscopy and intubation. These opioids areassociated with some side effects like respiratory depression, nausea, vomiting anddrowsiness. But with doses used in clinical setting to attenuate this pressure response side effects are minimal.

The purpose of this study to evaluate the safety and efficacy of intravenous morphine sulphate and fentanyl citrate in attenuation of hemodynamic response during laryngoscopy and intubation.

AIMS AND OBJECTIVES

To compare changes in heart rates, systolic blood pressure, diastolic blood pressure, mean blood pressure and side effects like respiratory depression, vomiting, bradycardia etc. in both groups.

MATERIAL AND METHODS

After obtaining approval from institutional review board and written informed consent this prospective study was carried out on 50 ASA I and II patients, aged 18-65years, scheduled for elective surgery requiring general anesthesia with endotracheal intubation. Patients of ASA grade III and IV, patients requiring nasal intubation, previous history of difficult intubation, repeated attempts of intubation, emergency surgery,pregnant patients, known sensitivity or intolerance to morphine and fentanyl, patients with cardiovascular, cerebrovascular, and gastro esophageal reflux disease were excluded from study. Detailed pre anesthetic evaluation of each case was done after obtaining the medical history, thorough systemic examination was carried out to detect the presence of any systemic disease. Routine and systemic investigations were done accordingly.

All patients were instructed to remain nil by mouth for at least 8 hours before surgery. Patients were premedicated with tab. Lorazepam hydrochloride 1 mg night before surgery. Five minutes prior to induction of anesthesia patient received study drug in Group I: Inj. morphine sulphate 0.15 mg/kg and in Group II: Inj. fentanyl citrate 4 mcg/kg IV. On arrival in the operation theatre patients were monitored with routine electrocardiogram (ECG), pulse oximetry (SPO2%), heart rate(HR), systolic blood pressure (SBP), diastolic blood pressure (DBP), mean blood pressure (MBP) and

were recorded as baseline value. After securing intravenous line all patients were given inj. glycopyrrolate 0.2mg IV. Prior to injection of study drug HR, SBP, DBP, MBP were recorded and designated as pre induction value. Anesthesia technique was identical in both thegroups. After preoxygenation with100% O2 for 3 minutes patients were induced with inj. thiopental sodium 2.5% 5mg/kg and muscle relaxation was provided with inj. vecuronium bromide 0.15mg/kg IV. Intermittent positive pressure ventilation was given for 3 minutes with 100% oxygen at rate of 12 breaths/minute. Laryngoscopy and intubation with proper size tube was carried out within 30 seconds by senior anesthesiologist. Anesthesia was maintained with O2 (50%) in N2O (50%) with sevoflurane (0.5-1%MAC).

All parameters including HR, SBP, DBP, MBP and side effects were recorded at following interval. Baseline: on arrival in operation theatre, pre induction: after inj. glycopyrrolate, 0 minute: at the time study drug given, after intubation 1, 2, 3, 4, 5, 6, 7, 10^{th}, 30^{th} minutes and 1, 2, 3, 4, 5, and 6^{th}hour post operatively. After completion of surgery patients were reversed with inj. glycopyrrolate 20mcg/kg IV and inj. neostigmine 40 mcg /kg IV. All patients were extubated when fully awake and following verbal command then shifted to postoperative ward.

We had following parameters for study: Hypotension defined as SBP <25% of baseline value or <90 mm of hg whichever was lower. Hypertension defined as SBP >25% of baseline value or >150 mm of hg whichever was greater. Tachycardia was defined as HR >25% of baseline value. Bradycardia was defined as HR <60 beats/ minute

Pre intubation and post intubation data were compared by paired "t" test in both the groups using graph pad software. P value <0.05 was considered statistically significant.

OBSERVATION AND RESULT

Both groups were comparable in respect to age, weight and gender (Table 1). Table 2 shows the type of the surgeries carried out. Graph 1 shows changes HR. Increase in HR is less in fentanyl group as compare to morphine group after intubation up to 1st hour following intubation. Fentanyl is more effective in attenuation of heart rate response (mean HR is77.8 bpm, SD-4.42) as compared to morphine sulphate (mean HR is 92.68bpm, SD-4.23) following laryngoscopy and intubation which is statistically significant (P value-<0.05). Graph 2, 3 shows changes in SBP, DBP before induction and after intubation. Increase in SBP, DBP less in fentanyl group as compare to morphine group. Fentanyl is more effective (mean SBP is 110.88 mm of hg, SD-7.92, mean DBP is 63.8 mm of hg, SD-5.27) in attenuation of blood pressure response as compared to morphine sulphate (mean SBP is 116.76 mm of hg, SD-8.17, mean DBP is 69.56 mm of hg, SD-5.50) following laryngoscopy and intubation which is statistically significant (P value <0.05). Table 3 shows occurrence of complications in both group. Hypotension was observed in 2 patients in both group which was treated by head low position and fast fluid. Bradycardia was observed in 3 patients in fentanyl group which was treated by inj.glycopyrrolate 0.2 mg IV.

DISCUSSION

Laryngoscopy and endotracheal intubation are stressful noxious stimuli which results in marked increase in release of sympathetic amines like adrenalin and noradrenalin by stimulating tracheal and laryngeal sensory receptor. This increase in sympathetic amines associated with perioperative hemodynamic instabilities like hypertension, cardiac arrhythmia, and tachycardia.[3-5] In addition, sudden hemodynamic changes may lead to serious complications, especially in patients with co morbid diseases like hypertension.[3,4,7,8] Many agents have been used to attenuate sympathetic

stimulation to decrease the incidences of perioperative complications like α adrenergic blockers, vasodilators, calcium channel blockers, sodium channel blocker, nerve blocks and inhaled anesthetics.[6-8] These drugs effectively attenuate hemodynamic responses butthey have no role for induction and maintenance of anesthesia and cause dangerous complications.[10] These hemodynamic responses to intubation were controlled effectively in our patients by using two drugs fentanyl and morphine. Narcotics are very commonly used for intraoperative analgesia, therefore there is no additional cost involved. Narcotics have advantage of having perioperative role in anesthesia. They can be used as sole or supplementary agent for induction of anesthesia.

Fentanyl is available in our country since 1988 and has various advantages like rapid onset, short duration of action, cardio stability, no histamine release, and no bronchospasm. Fentanyl on mg basis is about 80 times more potent than morphine.[11] Fentanyl and morphine were given 5 minutes before intubation which is an optimum time to administer these drugs to protect circulatory responses to laryngoscopy and endotracheal intubation. Ko SH [12] et al had studied 2 mcg/kg of fentanyl given at different time interval before intubation and they found fentanyl given 5 minutes before intubation provides good cardiovascular control. So similarly we have done intubation 5 minutes after injection of study drugs.

Hoda MQ et al[6] in his study compared intravenous morphine sulphate 0.15 mg/kg with tramadol 2 mg/kg and they found that morphine is better drug with this dose as compared to tramadol (maximum increase in HR was 11.86%, SBP was none, DBP was 2.46%, MBP was 1.96% in morphine group while maximum rise in HR was 28.92%, SBP was 8.06%, DBP was 3.31%, MBP was 4.16% in tramadol group following laryngoscopy and intubation) which was statistically significant (P value <0.05). Bharat Chaudhry et al[13] in his study used two different doses of fentanyl citrate 2 mcg/kg and 4 mcg/kg in attenuation of pressure response to laryngoscopy and intubation and they concluded that fentanyl citrate 4 mcg/kg IV completely attenuate pressure response which is comparable with our study. Neha Sharma et al[10] in his study compared fentanyl 2 mcg/kg intravenous and nalbuphine 0.2 mg/kg IV for pressure attenuation and they found that fentanyl group had 12.5% increase in heart rate and nalbuphine group had 13.6% during intubation which is almost equal. Maximum rise in SBP and DBP in nalbuphin was 14.9%and 8.9% respectively while it was 4.8% and 4.5% respectevly in fentanyl group. So fentanyl significantly reduces blood pressure as compared to nalbuphine which is comparable with our study. Bharat Chaudhary et al[11] in his study did not see any severe complications like respiratory depression with 4 mcg/kg dose of fentanyl citrate which is identical to our study. Deborah et al[13] in his study observed pharmacokinetic of fentanyl citrate in dose of 3.2 to 6.4 mcg/kg and they observed prolonged and recurrent respiratory depression in three patients out of seven patients. In our study with dose of 4 mcg/kg of fentanyl citrate no respiratory depression was found. We observed bradycardia in three patients and hypotension in two patients. Thompson et al[14] in his study compared respiratory depression with morphine and morphine 6 glucuronide and they found that morphine in dose 10 mg per 70 kg patients was associated with respiratory depression. In our study we use 0.15 mg/kg dose of morphine sulphate which is identical with above study but we do notobserved respiratory depression in our study. Hoda MQ et al[6] in his study did not seen any severe complications like respiratorydepression with 0.15 mg/kg dose of morphine sulphate which is identical to ourstudy.

Mean duration of surgery in fentanyl group of patients is 4.04 hours and in morphine group of patients is 4 hours might be the reason of absent of such complications.

CONCLUSION

Fentanyl citrate is more effective than *morphine* sulphate in attenuation of pressure response following direct laryngoscopy and endotracheal intubation during general anesthesia. Both these drugs with intravenous route of administration were simple, easy and safe for attenuation of pressure response without any serious complications.

TABLE: I
DEMOGRAPHIC DATA

variables	*group:M*	*group:F*
Age (years)	45.84±9.61	42.92±9.07
Sex (M:F)	4:21	6:19
Weight (kg)	54.12±6.28	53.92±6.99
Duration of surgery(hours)	4±0.31	4.04±0.34

TABLE: II
TYPE OF SURGERIES

Type of surgery	*Group-M(no. of patients)*	*Group-F(no. of patients)*
Staging laparotomy	7	6
Radical hysterectomy	1	0
Trans hiatal esophagectomy	4	2
Whipple procedure	1	0
Radical vulvectomy and groin dissection	2	1
Interval debulking	3	5
Abdominoperineal Resection	1	1
Colectomy	1	2
Wertheim's hysterectomy	1	2
Exploratory laparotomy	4	5
Lower anterior Resection	0	1
Total no. of Patients	25	25

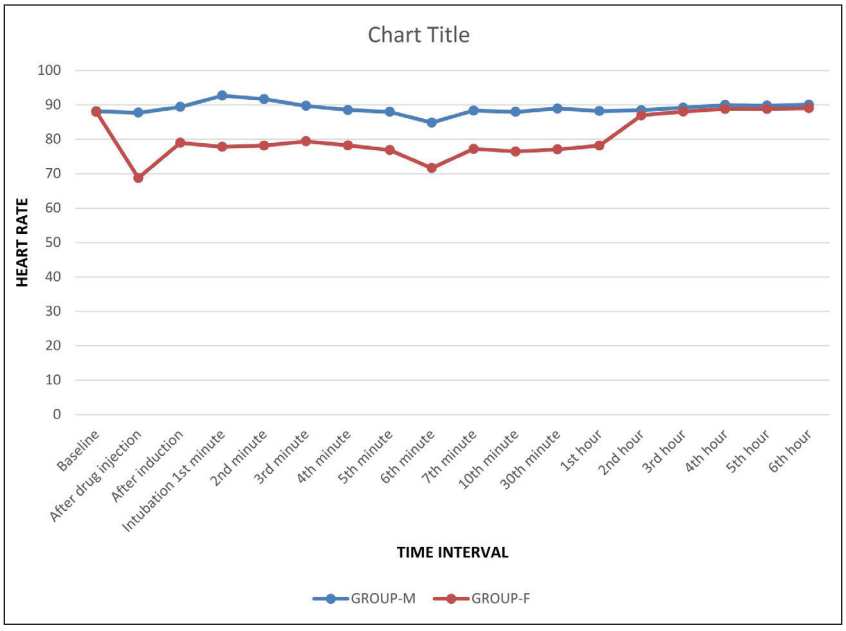
TABLE: III
COMPLICATIONS IN BOTH GROUPS

Complications	*No of patients*	
	Group: M	*Group: F*
Bradycardia	Nil	3

Nausea	2	3
Vomiting	Nil	Nil
Respiratory depression	Nil	Nil
Hypotension	2	2

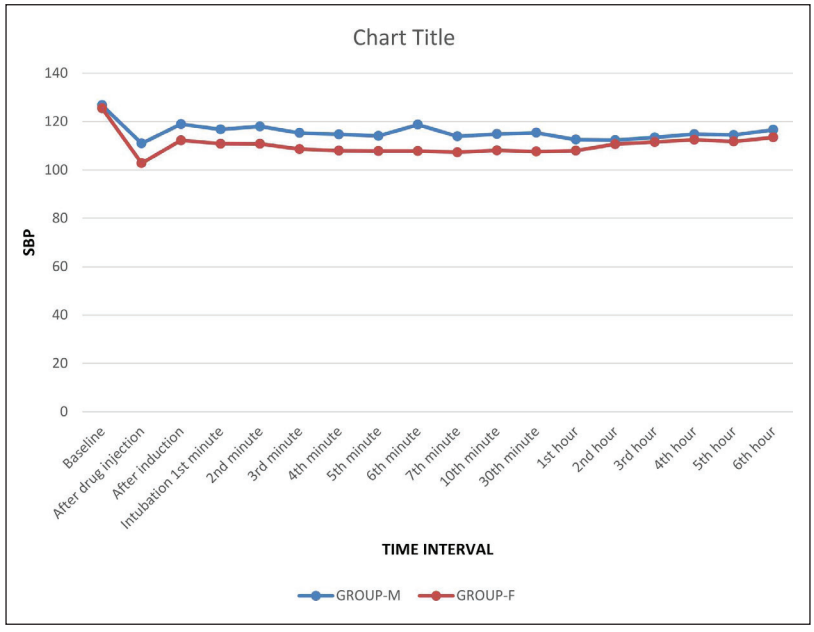
GRAPH: 1

MEAN HR AT DIFFERENT INTERVAL OF TIME



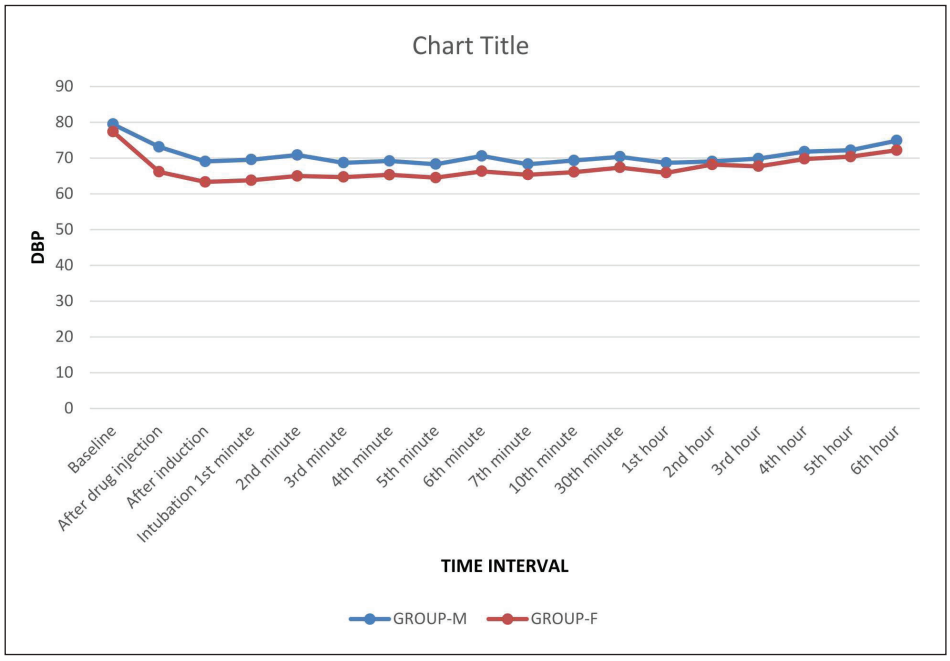
GRAPH: 2

MEANSBP AT DIFFERENT INTERVAL OF TIME



GRAPH: 3

MEANDBP AT DIFFERENT TIME INTERVAL



REFERENCES

1. Shribman AJ, Smith G, Akola KJ. Cardiovascular and catecholamineresponse to laryngoscopy with and without tracheal intubation. Br J Anaesth1987; 59:295-9.
2. Khan FA, Mahboobi SK. Effect of laryngoscopy and tracheal intubation onpulse pressure and influence of age on this response. Anaesth Intensive Care2004; 32:535-41.
3. Nishikawa K, Omote K, Kawana S, Namiki A. A comparison ofhemodynamic changes after endotracheal intubation by using the lightwanddevice and the laryngoscope in normotensive and hypertensive patients. AnaesthAnalg 2000; 90:1203-7.
4. Xue FS, Zhang GH, Sun HY, Li CW, Li P, Sun HT, Liu KP, Xu YC, Liu Y.Blood pressure and heart rate changes during intubation: a comparison ofdirect laryngoscopy and a fibreoptic method. Anesthesia 2006; 61:444-8.
5. Ronald D. Miller, Neal H. Cohen, Lars I. Eriksson, Lee A. Fleisher, JeanineP, William L. Young. Miller's textbook of anesthesia 2015; 1:864-87.
6. Hoda MQ, Khan MU, Abbas MQ, Sabir S. Hemodynamic response ofintravenous tramadol and intravenous morphine during laryngoscopy andendotracheal intubation. The journal of the Pakistan Medical Association2008; 58:30-33
7. Gandhi S, Goyal V, Radhakrishnan K, Balakrishnan M. Comparison of Dexmedetomidine with Fentanyl in attenuation of pressure response during laryngoscopy and intubation. IOSR Journal of Pharmacy 2014;4:28-38.
8. Patil A D,Ghodke BV,Patil SA. Attenuation of hemodynamic response to laryngoscopy and endotracheal intubation- acomparative study of Fentanyl and Esmolol. World Journal of

Pharmacy andPharmaceutical Sciences 2014; 3:460-72.

9. McClain DA, Hug CC. Intravenous fentanyl kinetics. Clinical Pharmacology and Therapeutics 1980; 28:106-114.
10. Ul Islam M, Ahmed I, Shah AA, Islam A. Attenuation of hemodynamic response to laryngoscopy and oral endotracheal intubation in coronary arterybypass surgery patients: intravenous morphine and lidocaine versusintravenous morphine and lidocaine spray. J Ayub Med Coll Abbottabad2014; 26:275-8.17.
11. Sharma N, Parikh H. A comparative study of hemodynamic responseto intubation: Fentanyl versus Nalbuphine. Gujarat Medical Journal 2014; 69:48-53.
12. Ko SH, Kim DC, Song HS. Small dose fentanyl: optimal time of injection for blunting the circulatory responses to tracheal intubation. AnnesthAnalg 1998; 86:658-661.
13. Chaudhary B, Shah SM, Sarvaiya VU. Comparative study of two different doses of fentanyl citrate 2 microgram/kg and 4 microgram/kgintravenous in attenuation of hemodynamic responses during intubation.NHL Journal of Medical Sciences 2013; 2:41-43.
14. Thompson PI, Joel SP, John L, Wedzicha JA, Maclean M,Selvin ML. Respiratory depression following morphine and morphine-6-glucuronide in normal subjects. Br JClinPharmacol 1995; 40:145-152.

GUIDELINES TO CONTRIBUTORS

Asian Archives of Anaesthesiology and Resuscitation (AAAR) was started in 1971 by initiative of late Prof. W.E. Spoeral of University of Western Ontario, London. He visited JIPMER, Pondicherry in 1970-71 and helped in starting this journal .Since then, AAAR was published under able guidance of (late) Prof. N.P. Singh continuously till date.

EDITORIAL POLICY

AAAR publishes original articles, review articles, special, articles, medical intelligence articles, case reports, technical communications editorials, book reviews and letters to the editor.All papers, after editorial scrutiny are peer reviewed by at least two referees. Acceptance is based on significance, originality and validity of the material presented.

SUMMARY OF REQUIREMENTS

Type the manuscript in MS word with leaving the margins adequately from all sides. Also Mention the number of the pages on right side corner on the sides and send the manuscript through Email to aaarjournal@gmail.com with CC to manpreetdawar@gmail.com.

Type the manuscript double spaced, including title page, Summary (abstract) and Key words, text, acknowledgements, references,table (each table complete with title and foot notes on a separate page) and legends for illustrations.

Each of the above mentioned component of the manuscript should begin with a new page, maintaining the sequence. Illustrations must be of good quality, unmounted glossy prints, usually 1227 x 173 mm (5 x 7 in) but not larger than203 x 254 mm (8 x 10 in). Manuscript should be submitted in CD in Microsoft Word format along with two hard copies (on paper as specified below) with a covering letter, as described under 'Submission of Manuscripts' and permission to reproduce previously published material or to use illustrations that may identify human subjects. From time to time the editor will request for 'Review Articles' on any particular topic. So, review articles may kindly be sent only on such requests. Authors should keep copies of everything submitted.

PREPARATION OF MANUSCRIPTS

Type the manuscript in MS word with leaving the margins adequately from all sides. Also Mention the number of the pages on right side corner on the sides and send the manuscript through Email to aaarjournal@gmail.com with CC to manpreetdawar@gmail.com

Format, Style and Grammar

The article is expected to be written in simple and small sentences. Due care need to be exercised by all the authors towards spelling, grammar and style of writing. The article needs to be written in 'past-participle passive voice' format.

Title Page

The title page should carry:

a) The Title of the article which must be concise, functional and informative. It must be accurate and not be misleading. Very short and cryptic titles are to be avoided as the words in the title may be used by electronic search engines to identify and categorise the paper.

b) Name of each author typed in capitals across the title page immediately beneath the title of

the article. A line should be drawn across the title page below the name(s) of author(s) in capitals.

Each author's a) highest academic qualification, institutional affiliation; b) name of department (s) and institution(s) to which the work should be attributed ; (c) name, address phone No. and email ID of author responsible for correspondence should be indicated.

Authorship

All persons designated as authors should qualify for authorship. The order of authorship should be a joint decision of the co-authors. Each author should have participated sufficiently in the work to take public responsibility for the content. Authorship credit should be based only on substantial contributions to

(a) conception and design or analysis and interpretation of data; and to

(b) drafting the article or revising it critically for important intellectual content; and on

(c) final approval of the version to be published. Conditions (a), (b) and (c) must all be met. Any part of an article critical to its main conclusions must be the responsibility of at least one author. Editor may ask the authors to justify the assignment of authorship.

Summary and Key Words

The second page should carry the summary (abstract) preferably of not more than 300 words, summarizing the work systematically by disclosing context, objectives, design, setting, participants, interventions, main outcome measures, results and conclusions .The abstract should reflect the paper and describe the message succinctly and accurately. The format of the abstract may be based on the standard IMRAD structure (Introduction, Methods, Results And Discussion) of the paper below the summary, provide and identify as such, 3 to 5 key words that will assist indexers in cross indexing. Use terms from the medical subject headings (MeSH) list of Medline.

Text

The text of observational and experimental articles is usually but not necessarily divided into sections with headings viz., Introduction, Methods, Results and Discussion (IMRAD). Other types of articles such as case reports, reviews, editorials are likely to need other formats. Nevertheless, a fundamental structure is the basis of all scientific papers.

Introduction

Start on a new page stating clearly the question being answered in the study. To lead the reader to this point it is essential to review the relevant literature briefly. Do not include data or conclusions from the work being reported.

Material and Methods

Over all the Material and Methods should answer three fundamental questions viz:How the study was designed? How the study was carried out? How the data were analysed? Though brevity is desirable, describe the selection of the observational or experimental subjects (patients of laboratory animals, including controls) clearly justify/ explain the sample size. Identify the methods, apparatus (manufacturer's name and address in parenthesis) and procedures in sufficient detail to enable other workers to reproduce the results. Give references to established methods, including statistical methods; provide references and brief descriptions for methods that have been published but are not well-known; describe new or substantially modified methods, give reasons for using them and evaluate their limitations. Identify precisely all drugs or chemicals used,

including generic name(s), dose(s), and route(s) of administration.

Ethics

When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2002. Indicate whether institutions or the Indian Council of Medical Research's guidelines were followed. No manuscript can be sent for publication in two journals at same time and it will be considered as ethical misconduct .The copyrights will be provided only to that journal where it is published first.

Legal Considerations

Authors should avoid the use of names, initials and hospital numbers which might lead to recognition of a patient. A patient must not be recognizable in photographs unless written consent of the subject has been obtained. A table or illustration that has been published elsewhere should be accompanied by a statement that permission for reproduction has been obtained from the publishers.

Statistics

Input from a statistician should be sought at the planning stage of the study. The statistical methods with enough details to enable a knowledgeable reader with access to the original data to verify the reported results, should be incorporated. Give a brief note of how you arrived at the chosen sample size of your study. Give the exact tests used to analyse the data statistically and include an appropriate reference if the test is not well known. If computer software was used, give the type and version of the software. When possible, quantify findings and present them with appropriate indicators or easurement error or uncertainty (such as 95% Confidence Intervals). Avoid sole reliance on statistical hypothesis testing such as the use of p values, which fails to convey important quantitative information.

Results

This section has to have two essential features: there should be an overall description of the major findings of the study; and the data should be presented clearly and concisely. Present your results in logical sequence in the text, tables and illustrations. Do not repeat in the text all the data in the table or illustrations; emphasise or summarise only important observations. It is worthwhile stating briefly what you did not find, as this may stop other workers in the area undertaking unnecessary studies.

Discussion

It is difficult not to write a long and detailed analysis of the literature that you know so well. A rough guide to the length of 'Discussion', however is that it should not be more than one third of the total length of the manuscript (IMRAD) Emphasise and summarise the new and important findings of the study and the inferences that follow from them. Discuss possible problems with the methods used. Compare your results with previous work or relate your observations to other relevant studies. Discuss the scientific and clinical implications of your findings. Do not repeat in detail data or other material given in the 'introduction' or the 'Results' section. Discuss and analyse the limitations of your study, including suggestion for future work.

Conclusions

Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not completely supported by your data.

Acknowledgements

They should be brief and should include reference to the source of technical help, material support and financial assistance. Individuals named must approve their inclusion in the acknowledgements, before the paper is submitted.

References

The references of the article are the foundation on which the work of the study is built. They provide the scientific background that justifies your study, including the methods used. AAAR follows 'Vancouver style' of quoting the references as superscripts in which references are numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses. References cited only in tables or in legends to figure should be numbered in accordance with a sequence established by the first identification in the text of the particular table or figure. Use the style of the examples below, which are based with slight modifications on the formats used by the U S National Library of Medicine in Medline database. The titles of journals should be abbreviated according to the style used in Medline. The references must be verified by the authors(s) against the original documents. Restrict references to those that have a direct bearing on the work described, preferably less than 25 for general articles and 6 for short communications.

Examples of correct forms of references are given below.

A. Journals

1. Standard journal article List all authors, but if number exceeds six, list only first three and add et al. Fery AM, Haynes AR, Owen KJ, Farrall M, Jack LA, Lai LY, et al. Predisposing locus for Alzheimer's disease on chromosome 21, Lancet 1989; 1: 352-5.
2. Organisation as author: The Royal Marsden Hospital Bonemarrow Transplantation Team. Failure of syngeneic bonemarrow graft without preconditioning in post- hepatitis marrow aplasia. Lancet 1977; 2: 742-4.
3. No author given : Coffee drinking and cancer of the pancreas (editorial). BMJ 1981; 283:628.

B. Books and other Monographs

1. Personal author(s): Colson JH, Armour WJ. Sports injuries and their treatment, 2nd rev. ed. London: S. Paul, 1986.
2. Editor(s), compiler as authors : Diener HC, Wilkinson M, editors. Drug-induced headache. New York: Springer Verlag, 1988.
3. Chapters in a book: Weinstein L, Swartz MN. Pathologic properties of invading microorganisms. In:Sodeman WA Jr, Sodeman WA, editors. Pathologic physiology: mechanisms of disease. Philadelphia: Saunders, 1974: 457-72.

C. Other Published Material

Newspaper article: Rensberger B, Specter B, CFCs may be destroyed by natural process. The Washington Post 1989 Aug. 7; Sect. A:2 (Col.5).

D. Unpublished Material

Lillywhite HD, Donald JA. Pulmonary blood flow regulation in an aquatic snake. Science. In press or Personal Communication

E. Internet References

Complete Website address and the location to be mentioned.

Tables

Do not include tables in the text.

Type each table, double-spaced on a separate sheet.

Number tables consecutively in the order of their first citation in the text and put a brief title for each. Give each table a short abbreviated heading, Mention explanatory matter as well as explanations of all non-standard abbreviations used in the table, in footnotes and not in the heading. Identify statistical measures of variations such as standard deviation and standard error of the mean. Indicate approximate position of each table in relation to the subject matter of the text right hand margin of the appropriate page of the manuscript. If you use data from another published or unpublished source, obtain permission and acknowledge fully. Maximum tables allowed in any manuscript is as follows:

Maximum Tables Allowance

General Article (excluding abstract)	6
Case Report	2
Brief Report	4
Technical Communication	5
Review Article	10
Medical Intelligence Article	6
Special Article	6
Editorial	1
Letter to the Editor	2

Illustrations (Figures)

Submit two complete sets of figures. Figures should be professionally drawn and photographed; free hand or typewritten lettering is unacceptable. Instead of original drawings, roentgenograms, and other material, send sharp, glossy, black and white photographic prints as mentioned earlier. Letters, numbers, and symbols should be clear and even throughout and of sufficient size that when reduced for publication each item will still be legible. Each figure should have a label pasted on its back indicating the number of the figure, author's name and top of the figure. Do not write on the back of figures or scratch or mark them by using paper clips. Figures should be numbered consecutively according to the order in which they have been first cited in the text. If a figure has been published, acknowledge the original source and submit written permission from the copyright holder to reproduce the material. Do not include these in the text. Indicate the appropriate position of each figure in relation to the subject matter of the text in the right hand margin of the appropriate page of manuscript.

Units of Measurement

All measurements – length, height, weight and volume,etc. should be reported in metric units (metre, kilogram, or litre) or their decimal multiples. Temperatures should be given in degree Celsius. Blood pressure should be given in millimetres of mercury. All haematologic and clinical chemistry measurements should be reported in the metric system in terms of the International System of Units (SI).

Abbreviations and Symbols

Use only standard abbreviations. Avoid abbreviations in the title and abstract. The full term for which an abbreviation stands, for should precede its first use in the text unless it is a standard unit of measurement.

Correspondence

A. Letters to the editor include brief constructive comments concerning previously published articles or brief notations of general interest. The manuscripts must be double-spaced, and a title and two copies must be provided. Letters may be submitted at **aaarjournal@**

gmail.com .

B. The editor may change, delete or modify in any way all items of correspondence.

Maximum Word Allowance: When submitting your manuscript, please observe the maximum word count allowed for each type of submission; and the maximum allowance for figures, tables, and references (word count should reflect text only and must be listed in the cover letter):

Maximum Word Allowance

Type of articles	*Words*
General Article (excluding abstract)	3000
Case Report	800
Brief Report	1000
Technical Communication	1500
Review Article	4000
Medical Intelligence Article	3000
Special Article	2000
Editorial	1500
Book Review	750
Letter to the Editor	200
Abstract	200
Implications	50

Non-textual Material Maximum Allowance

Figure and Tables No more than 3 each or a combination of 6 total. Do not duplicate data in tables and figures. References No more than 25 references per article, up to 40 references are acceptable.

Submission of Manuscripts

Manuscripts (including tables, figures, photographs,etc). accompanied by a covering letter should be signed by all the authors. The covering letter must provide an undertaking to the effect that (a) the article has not been published or submitted to or accepted for publication in any form in any other journal,(b) the authors vouch safe that the authorship of this article will not be contested by any one whose name (s) is/are not listed, (c) on acceptance the article will become copyright of AAAR (d) the sequence of the names of co-authors (e) the manuscript has been read and approved by all the authors,(f) name, address and the email ID of the corresponding author (responsible for communication).On final preparation, two hard copies and a soft copy (CD) of manuscripts should be mailed to retaining one copy with the corresponding author. A letter of acceptance or otherwise, will normally be sent to the author within 3 (three) months. Articles which are not accepted cannot be sent to the author unless accompanied by adequate postage stamps.

A completed checklist must accompany each manuscript submitted to Asian Archives of Anaesthesiology and Resuscitation.

Check the manuscript before submission

General

1. Two complete sets of manuscripts (including tables) are submitted.
2. A floppy disk or CD is submitted with two files: the complete manuscript and a separate file containing only the title page, abstract, and references.
3. Manuscript is typed double-spaced, with ample, left , justified, margins.
4. Pages are numbered consecutively, starting with the title page.

Title Page

1. On the first page are typed the title, author name(s) and major degree(s), and affiliation(s).
2. The name, address, telephone and FAX

numbers, and E-mail address of the corresponding author are to be given.

3. The manuscript title is no longer than 100 characters (letters and spaces) and does not contain any abbreviations.
4. A short title (no more than 30 characters) is provided at the bottom of page for use as a running foot.

Summary

*An abstract is provided. For all kind of articles, this abstract is structured and limited to max.300 words.

References

1. References correspond to the specifications of the Uniform Requirements for Manuscripts Submitted to Biomedical Journals" promulgated by the International Committee of Medical Journal Editors.
2. References are identified in the text by superscript figures, eg., Miller.
3. Each reference is cited in the text. Those appearing in tables and figures should be cited in the text where the table or figure is mentioned.
4. References are numbered consecutively in the order in which they appear in the text. (Vancouver Style)
5. Unpublished data, personal communications, submitted manuscripts, statistical programs, papers presented at meetings, and non–peer-review publications are not listed in the bibliography.
6. The bibliography is typed double–spaced.
7. Abbreviations of Journal titles conform to those used in Index Medicus, National Library of Medicine.

Tables

1. Each table is typed on a separate sheet of paper with its title.
2. Tables are numbered with Arabic numerals.
3. Each table contains all necessary information in order that it may stand alone, independent of the text.
4. No table contains data that could be included in the text in several sentences.
5. Vertical lines are not used.
6. Irrelevant and extra tables must not be included

Figures

1. Each figure is cited in the text.
2. Two sets are submitted of glossy prints of sonographs, photomicrographs, radiographs, color illustrations, or any other figure that might not reproduce well.
3. Two sets of glossy prints of other figures are submitted.
4. Figures have been prepared with the journal column size in mind.
5. Letters and identifying marks are clear and sharp, and the critical areas of radiographs and photomicrographs are identified.
6. Legends and explanatory material appear in the accompanying caption and not no the figure itself.
7. Legends are typed together on one page. Legends for photomicrographs include information regarding stain and magnification.
8. Nothing is written on the back of the figures. An adhesive label, designating the top, with the first author's name and number of the figure, is attached firmly to the back of the illustration.
9. Figures are placed in a labeled envelop. No glue, paper clips or tape has been used on art.