



Comparison between Betamethasone Gel and Lignocaine Jelly Applied over Endotracheal Tube to Reduce Post Operative Sore throat, Cough and Hoarseness of Voice

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Abstract

Background and Objectives: Controlled comparison between 0.05% betamethasone gel, 2% lidocaine jelly, lubricating gel applied over endotracheal tube to reduce postoperative sore throat, cough, and hoarseness of voice at 0,6,&24 hrs

Patients and Methods: This study compares the incidence of postoperative sore throat, cough, and hoarseness of voice after general anaesthesia when applying betamethasone gel (betamethasone group-B) or lidocaine jelly (lidocaine group -L) on the tracheal tube. 120 ASA class I and II patients undergoing elective surgeries under general anaesthesia with orotracheal intubation were randomized into three groups: betamethasone gel, lidocaine jelly, and control groups (C group). In the post-anaesthesia care unit, all patients were interviewed on postoperative sore throat, cough, and hoarseness of voice at 0, 6, and 24 h after surgery.

Results and Conclusion: A wide spread application of betamethasone gel (B) on the endotracheal tube decreases the incidence and severity of postoperative sore throat, cough, and hoarseness of voice as compared to lignocaine group(L) and control group (c).

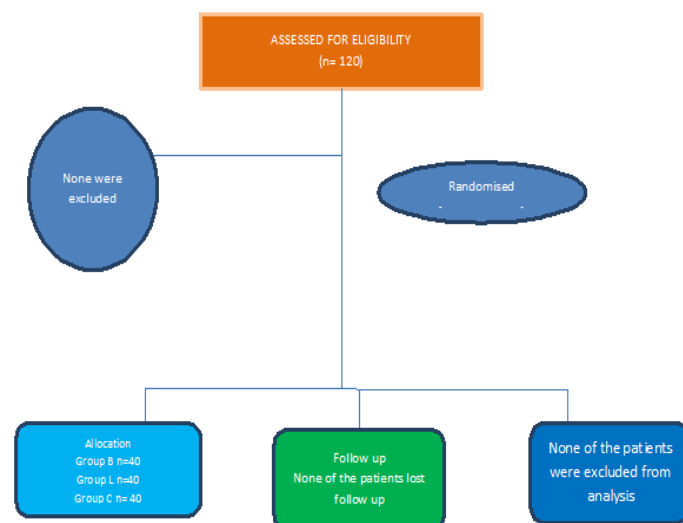
Keywords: betamethasone , lignocaine , sorethroat, hoarsness of voice, cough.

Introduction

Background: Postoperative sore throat, cough, and hoarseness of voice though minor sequelae after general anesthesia can be distressing to the patient.

Aim

- To evaluate three different methods as regard to their efficacy for controlling the postoperative pharyngo-laryngo-tracheal sequelae.
- To compare the incidence of sore hoarseness of voice, sore throat, cough, after general anesthesia.



Materials and Methods

- ❑ Randomized, single-blind comparative study carried out among 120 ASA I and II patients aged 18–60 years undergoing elective surgery under general anesthesia with endotracheal intubation. Patients were randomly divided into three groups of 40 patients each.
- Group B - 40 cases in betamethasone (0.05%) gel group and
- Group L - 40 cases in 2% lignocaine jelly and
- Group C - 40 cases in control group (water soluble gel) were used.
- Ethical committee approval was obtained.

Inclusion Criteria

- Only (ASA) I and II patients
- Age 18-60 years
- Elective procedures requiring endotracheal intubation of both genders

Exclusion Criteria

- Patients having upper respiratory tract infection preoperatively
- Oronasal surgeries
- Patients on steroids & throat packs
- Surgical duration of >120 mins
- Anticipated difficult airway and more than two attempts at intubation

Methodology

- ❑ On arrival of the patient in the operating room, Basic monitors attached, IV line secured.
- ❑ After premedication with inj. Glycopyrrolate 0.2mg, inj Fentanyl 2mcg/kg and induction of anaesthesia with inj. Thiopentone 5mg/kg intubation facilitated with succinylcholine 2mg/kg .
- ❑ Betamethasone gel, lidocaine jelly, and KY jelly was applied respectively depending on the group , on the external surface of Endotracheal tube from the distal end of the cuff to a distance of 15

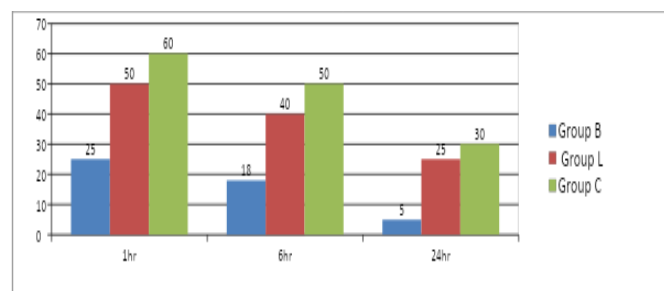
cm from the tip using 2.5 ml of either of the gel spread uniformly with sterile precautions.

- ❑ Single use endotracheal tubes, having low-pressure–high-volume cuffs, of size 8.0 mm and 7.0 mm internal diameter were used for male and female patients, respectively. Anaesthesia was maintained by 66% N2O & 33% O2, Titrated doses of Atracurium was given .
- ❑ Oral suctioning was done just before extubation, patient was reversed & extubated after deflating the cuff when the patient fully awake.
- ❑ Post operatively patients were assessed at 1, 6 &24 hours.

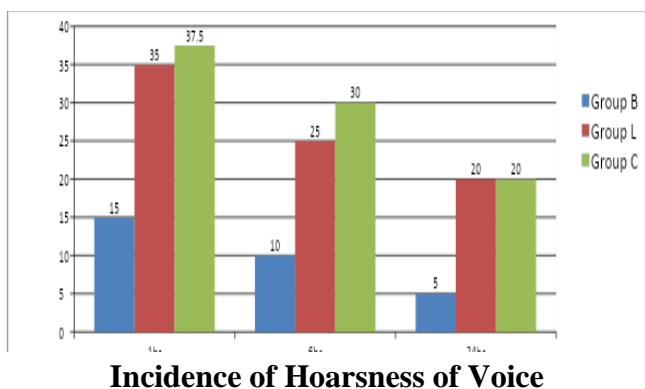
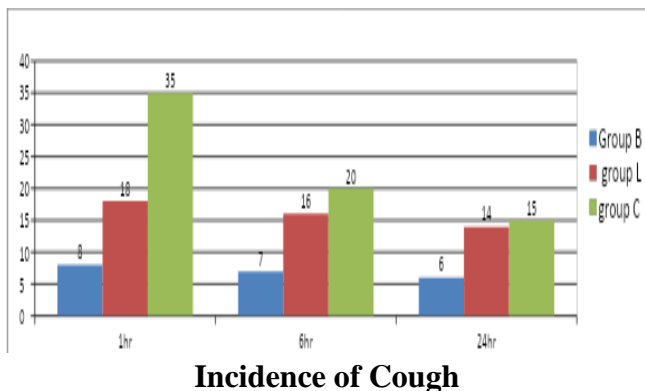
Observation & Analysis: All this information was collected through a pre designed Proforma.

- ❖ Data was analyzed, mean and standard deviation was calculated for numerical variable like age weight and duration of surgery.
- ❖ Frequency table and percentages were generated for variables like gender, presence or absence of cough, hoarsness of voice, sore throat.
- ❖ Student T test was applied for comparison of two proportions for cough, sore throat and hoarseness. P value <0.05 was considered as significant.

	GROUP B	GROUP L	GROUP C
NUMBER (n)	40	40	40
AGE(mean ± SD) in years	40.8 ± 12	38.58 ± 12.2	42 ± 12.9
SEX(M/F)	22/18	20/20	19/21
WEIGHT	58.18 ± 10.9	56.36 ± 11.01	55.35 ± 10.44
ASA (1/2)	26/14	28/12	30/10



Incidence of Sore Throat



- Our study confirms the findings of studies by Ayoub and colleagues proving that widespread application of betamethasone gel significantly reduces the incidence of postoperative sore throat, cough, and hoarseness of voice.
- Ayoub and colleague compared only the betamethasone gel group vs the control group. We included a lidocaine jelly group in addition to the control group, because lidocaine jelly is widely used in clinical practice to lubricate endotracheal tube.
- Stride concluded that 1% hydrocortisone water soluble cream was ineffective in reducing the incidence of postoperative sore throat, it was realized that they had applied topical hydrocortisone only from the distal tip to 5 cm above the cuff.

Results

- No patients were excluded from analysis.
- At 24 h following extubation, group B had the lowest incidence of postoperative sore throat among the three groups (group B: 5% vs group C: 30% vs group L: 25%; p = 0.036). Severity of postoperative sore throat at 24 h was less with betamethasone (score 0: 88%, 1: 10%).
- None of the patients suffered from severe cough or hoarseness of voice.
- After this study all patients were followed for one week and there was no history of flaring up of infection with betamethasone group.

Mechanism of development of post op pharyngo-laryngo-tracheal sequelae

Cuff pressure induced mucosal irritation leads to secretion of arachidonic acid and cytokines leading to mucosal edema and inflammatory changes, resulting in post op pharyngo-laryngo-tracheal sequelae.

Amount of Betamethasone used in our study was 1-2mg, which is anti inflammatory dose.

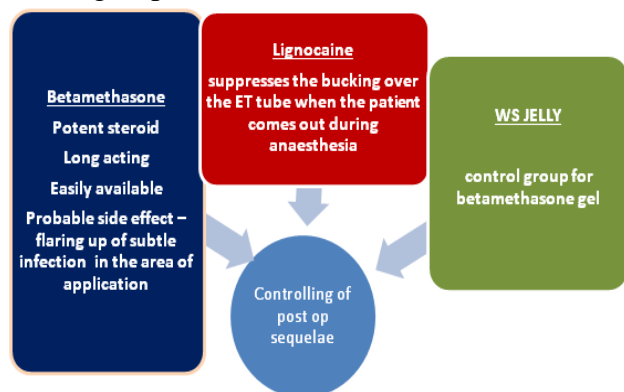
We observed that 0.05% Betamethasone was effective in decreasing the frequency of sore throat , hoarseness and cough.

Conclusion

We conclude that betamethasone gel applied widely over tracheal tube effectively mitigates postoperative sore throat, cough, and hoarseness of voice compared with lidocaine jelly application & KY jelly.

Reference

1. Higgins PP, Chung F, Mezei G. Postoperative sore throat after ambulatory surgery. Br J Anaesth. 2002;88(4):582-4. doi:10.1093/bja/88.4.582. (http://bja.oxfordjournals.org/content/88/4/



- 582.long). Accessed 28 Apr 2014. [PubMed]
2. Biro P, Seifert B, Pasch T. Complaints of sore throat after tracheal intubation: a prospective evaluation. *Eur J Anaesthesiol.* 2005;22(4):307–11. doi:10.1017/S0265021505000529. (<http://www.ncbi.nlm.nih.gov/pubmed/15892411>). Accessed 25 Jan 2012. [PubMed]
 3. Ahmed A, Abbasi S, Ghafoor HB, Ishaq M. Postoperative sore throat after elective surgical procedures. *J Ayub Med Coll Abbottabad.* 2007;19(2):12–4. (<http://ayubmed.edu.pk/JAMC/PAST/19-2/03%2006-101%20Alyia%20Ahmed.pdf>). Accessed 25 Jan 2012. [PubMed]
 4. Selvaraj T, Dhanpal R. Evaluation of the application of topical steroids on the endotracheal tube in decreasing postoperative sore throat. *J Anaesthesiol Clin Pharmacol.* 2002;18:167–170. [Google Scholar]
 5. Sumathi PA, Shenoy T, Ambareesha M, Krishna HM. Controlled comparison between betamethasone gel and lidocaine jelly applied over tracheal tube to reduce postoperative sore throat, cough, and hoarseness of voice. *Br J Anaesth.* 2008;100(2):215–8. doi:10.1093/bja/aem341. (<http://bj.oxfordjournals.org/content/100/2/215.full.pdf>). Accessed 26 Jan 2012. [PubMed]
 6. Yamanaka H, Hayashi Y, Watanabe Y, Uematu H, Mashimo T. Prolonged hoarseness and arytenoid cartilage dislocation after tracheal intubation. *Br J Anaesth.* 2009;103(3):452–5. doi:10.1093/bja/aep169. (<http://bj.oxfordjournals.org/content/103/3/452.long>). Accessed 15 Oct 2011. [PubMed]
 7. Agarwal A, Gupta D, Yadav G, Goyal P, Singh PK, Singh U. An evaluation of the efficacy of licorice gargle for attenuating postoperative sore throat: a prospective, randomized, single-blind study. *Anesth Analg.* 2009;109:77–81. doi:10.1213/ane.0b013e3181a6ad47. Accessed 24 Oct 2016. [PubMed]
 8. Ayoub CM, Ghobashy A, Koch ME, McGrimley L, Pascale V, Qadir S, et al. Widespread application of topical steroids to decrease sore throat, hoarseness, and cough after tracheal intubation. *Anesth Analg.* 1998;87(3):714–6. doi:10.1213/00000539-199809000-00042. Accessed 26 Jan 2012. [PubMed]
 9. Fuller PB. The relationship between preintubation lidocaine and postanesthesia sore throat. *AANA J.* 1992;60(4):374–8. Accessed 22 Oct 2016. [PubMed]
 10. Takekawa K, Yoshimi S, Kinoshita Y. Effects of intravenous lidocaine prior to intubation on postoperative airway symptoms. *J Anesth.* 2006;20(1):44–47. doi: 10.1007/s00540-005-0363-8. [PubMed] [CrossRef] [Google Scholar]
 11. Klemola UM, Saarnivaara L, Yrjola H. Post-operative sore throat: effect of lignocaine jelly and spray with endotracheal intubation. *Eur J Anaesthesiol.* 1988;5(6):391–9. (<http://www.ncbi.nlm.nih.gov/pubmed/3240760>). Accessed 24 Oct 2016. [PubMed]
 12. Kori K, Muratani T, Tatsumi S, Minami T. Influence of endotracheal tube cuff lubrication on postoperative sore throat and hoarseness. *Masui.* 2009;58(3):342–5. (<http://www.ncbi.nlm.nih.gov/pubmed/19306635>). [PubMed]
 13. Soltani HA, Aghadavoudi O. The effect of different lidocaine application methods on postoperative cough and sore throat. *J Clin Anesth.* 2002;14(1):15–8. doi:10.1016/S0952-8180(01)00344-0. (<http://www.sciencedirect.com/science/article/pii/S0952818001003440?np=y>). [PubMed]

14. Rudra A, Ray S, Chatterjee S, Ahmed A, Ghosh S. Gargling with ketamine attenuates the postoperative sore throat. *Indian J Anaesth.* 2009;53(1):40–3. (<http://www.ijaweb.org/text.asp?2009/53/1/40/60255>). Accessed 31 Dec 2011. [PMC free article] [PubMed]
15. Shrestha SK, Bhattarai B, Singh J. Ketamine gargling and postoperative sore throat. *J Nepal Med Assoc.* 2010; 50(180):282–5. (<http://jnma.com.np/journal/index.php/jnma/article/view/55>). Accessed 12 Jan 2012. [PubMed]
16. Kazemi A, Amini A. The effect of betamethasone gel in reducing sore throat, cough, and hoarseness after laryngo-tracheal intubation. *Middle East J Anesthesiol.* 2007;19(1):197–204. (http://www.meja.aub.edu.lb/downloads/19_1/197.pdf). Accessed 30 Nov 2011. [PubMed]
17. Maruyama K, Sakai H, Miyazawa H, Toda N, Inuma Y, Mochizuki N, et al. Sore throat and hoarseness after total intravenous anaesthesia. *Br J Anaesth.* 2004;92(4):541–3. doi:10.1093/bja/ae098. (<http://bja.oxfordjournals.org/content/92/4/541.full>). [PubMed].