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Brief Research Report

Post intubation Pharyngolaryngeal Pain in Otorhinolaryngology Surgery: Efficiency of Intra cuff and Extra cuff Lidocaine

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ABSTRACT

Introduction

Post-operative sore throat (POST) represents a real discomfort for patients. In short duration surgeries, sore throat complain can replace the post-operative pain. Many studies intended to reduce its incidence using multiples medications.

Objective

Assess the efficiency of extra cuff lidocaine jelly 2% associated with intra cuff liquid lidocaine 2% on the post extubation syndrome.

Materials and method

Prospective study lead during 3 months in Otorhinolaryngology operating rooms. Inclusion criteria: Every intubation (naso or orotracheal) performed during this period. Exclusion criteria: upper airways surgery, tonsillectomy and patient's refusal. Patients were randomized in 3 groups: First (G1): Control group (inflated cuff with air), Second (G2): liquid lidocaine 2% injected intra cuff, Third (G3): Lidocaine 2% jelly applied on the external surface of the cuff associated with liquid lidocaine intra cuff. Patients were assessed for post-operative sore throat, cough, and hoarseness at 1, 6, and 24 hours after surgery.

Results

Ninety-nine patients were randomized (G1 n=30, G2 n=34, G3 n=35). The association of liquid and jelly lidocaine reduced POST at H1, H6, and H24 after patient's discharge (p respectively at 0.0001; 0.002; 0.003 and 0.004). There was no significant difference in blunting coughing (p=0.053) and post-operative nausea and vomiting (p=0.198)

Conclusion

The association of liquid and jelly lidocaine was efficient in reducing the POST. This result needs to be supported by a larger study including an important number of patients.

INTRODUCTION

Post intubation pharyngolaryngeal pain is a real concern for anesthesiologists. In fact, it represents one of the most reported complains in post-operative care unit (POCU). Many factors were discussed: duration of intubation and intratracheal cuff's pressure. Therefore many studies have tried using lidocaine associated or not with other medications (like betamethasone or alkalinized solutions) in order to reduce this pain. In our study we wanted to assess the efficiency of liquid lidocaine 2% used to inflate the cuff and as a gel on the cuff's external surface on post-operative sore throat (POST).

MATERIALS AND METHODS

It's a prospective study realized during three months in the otorhinolaryngology operative rooms in the 20 August hospital in Casablanca, Morocco.

After a full explanation of the procedure to the patients and obtaining their consent, we randomized them in three groups: control group with no lidocaine (Group 1), use of liquid lidocaine in the cuff (Group 2), use of both lidocaine gel around the cuff and liquid in the cuff (Group 3).

Inclusion criteria were: every orotracheal or nasotracheal intubation realized in our operative rooms.

Exclusion criteria were: non cooperative patient, surgery concerning upper airways or tonsillectomy and sore throat before surgery. Patients with an age less than 18-years-old were excluded.

Cuff's pressure was standardized for all patients to prevent air leak during ventilation. Collected data concerned: demographics, type of surgery with the duration of intubation, number of attempts in intubation with the use or not of other airway device for difficult intubation, coughing after extubation with reintubation. Pain was assessed with visual analog scale (VAS) at H1, H6, H24 and before patient's discharge from the hospital. A physician applied the protocol during anesthesia and the VAS assessment was determined with a help of another anesthesiologist without knowing which protocol was used.

Extracted data was analyzed using SPSS software (IBM New York, United States), Chi-square test was used to assess the relation between sore throat and the protocol. A significance threshold of 0.05 was adopted for all statistical analyses.

The protocol of anesthesia was standardized for all patients. Induction was performed using: Fentanyl 2,5 µg/Kg, propofol 3 mg/Kg and rocuronium at 0,6 mg/Kg to facilitate intubation after a proper ventilation and preoxygenation. Intubation was performed using a single use cuffed PVC tracheal tube. Cuff's pressure was adjusted to 25 cm H_2O. In Group1: the cuff was inflated with air, in the second group with liquid Lidocaine 2%; for the third group, the cuff was inflated with liquid lidocaine 2% and lidocaine 2% gel was applied on the external surface of the cuff.

RESULTS

During the period of the study we included 99 patients. They were randomized into 3 groups:

Group 1: 30 patients,

Group 2: 34 and

Group 3: 35 patients.

3 cases of difficult intubation were noted.

Table 1. *Demographic Data*

Demographic Data	Group 1	Group 2	Group 3
Mean Age (years)	35	43	38
Sex ratio	0.60	0.38	0.49
Mean BMI (kg/m2)	23,81	23,25	23,28
Smokers (n)	4	7	2
Diabetes (n)	1	1	1
Cardiopathy (n)	0	0	0
Hypertension (n)	0	7	3
Dyslipidemia (n)	0	0	0
Orotracheal/nasotracheal (n)	26/4	32/2	25/10

Table 2. *Type of Surgery between the 3 Groups. (Chi Square Test p=0,003)*

		Protocol			Total
		1	2	3	
Surgery	Ear Surgery	15	15	11	41
	Esthetic Surgery	3	8	11	22
	Mandible Surgery	3	3	4	10
	Orbit Surgery	1	0	5	6
	Parotid Surgery	3	2	0	5
	Thyroid Surgery	5	6	4	15
Total		30	34	35	99

Table 3. *Result Comparison between the Groups (Chi Square Test)*

		Group 1	Group 2	Group 3	p
Sex	M	18	13	17	0.221
	F	12	21	18	
Smoking	Yes	4	7	2	0.188
	No	26	27	33	
Difficult intubation		0	2	1	0.390
Number of attempts for intubation					
=1		16	24	22	0.556
=2		12	8	12	
=3		1	2	1	
=4		1	0	0	
VAS (H1) = 0		8	21	26	
=1		0	6	6	
=2		14	7	3	
=3		7	0	0	
=4		1	0	0	
VAS (H6) = 0		17	30	29	0.02
=1		6	2	0	
=2		2	1	4	
=3		4	0	2	
=4		1	1	0	
VAS (H24) = 0		23	33	32	0.003
=1		5	0	0	
=2		0	0	3	
=3		2	1	0	
=4		0	0	0	
VAS at patient's discharge					
=0		23	33	35	0.004
=1		6	0	0	
=2		1	0	0	
=3		0	1	0	
=4		0	0	0	
Coughing		19	14	12	0.053
PONV		4	11	28	0.198

*PONV: Post-operative nausea and vomiting.

DISCUSSION

This POST can represent a discomfort and even a painful experience. It is represented by a syndrome called: Post Extubation Syndrome (PES).[1]

The present study revealed that lidocaine used as liquid in the cuff and as jelly on the external surface reduced the incidence and the intensity of the POST. Although this finding, emergence coughing and the incidence of PONV did not decrease.

The specificity of our study is to relate the PES in short surgeries and in day hospital interventions conducted under general anesthesia. Therefore, intensity of POST can be more important than the post-operative pain.

The incidence of POST is influenced by many factors such as intubation procedure, endotracheal tube (ETT) cuff's pressure, ETT mobilization during procedure, coughing and aspirations before extubation.[2,3,4] After mucosae irritation with the ETT, lidocaine, with its analgesic and anti-inflammatory effects seems to be the first choice for POST topic therapy. Therefore, therapies using lidocaine were applied in order to lower its incidence and severity.[5]

Protocols using lidocaine associated with alkalinized solution or with betamethasone were also evaluated.[6,7] They found that the use of betamethasone and lidocaine did not decrease the incidence of hoarseness, but it increased sore throats incidence. We can hypothesize that the anesthetic effect can decrease the incidence of sore throat but associated lidocaine jelly with its spray increased its side effects.

Post extubation cough can increase the incidence of several complications: bleeding, bronchospasm, higher intra ocular, intra cranial pressure, and wound dehiscence. Therefore, IV lidocaine was efficient in extubation and previous investigation demonstrated that lidocaine jelly applied on the ETT with barrel-shaped cuff prevents cough at immediate post-operative period.[6] Whereas, our study did not find a significant difference in emerging cough.

We found multiple limitations. The first one concerned the subjectivity of the POST. The second one concerned the small number of included patients. The third one is that we included a young population with a maximum mean age at 43-years-old; therefore, results cannot be generalized to elderly people.

It would have been interesting to study smokers' population. With underlying airway irritability, lidocaine can be evaluated in reducing the PES.

CONCLUSION

The present study demonstrated that lidocaine applied on both sides of the cuff reduced efficiently the incidence and the intensity of POST without reducing coughing or PONV. There is a need in conducting larger studies to support this result.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

1. Jones MW, Catling S, Evans E, Green DH, Green JR. Hoarseness after tracheal intubation. *Anaesthesia.* 1992; 47: 213-216. doi: 10.1111/j.1365-2044.1992.tb02121.x

2. Christensen AM, Willemoes-Larsen H, Lundby L, Jakobsen KB. Post-operative throat complaints after tracheal intubation. *Br J Anaesth.* 1994; 73: 786-787. doi: 10.1093/bja/73.6.786

3. Narimani M, Seyed Mehdi SA, Gholami F, et al. The effect of betamethasone gel and lidocaine jelly applied over tracheal tube cuff on post-operative sore throat, cough, and hoarseness. *J Perianesth Nurs.* 2016; 31: 298-302. doi: 10.1016/j.jopan.2015.08.012

4. Navarro LH, Lima RM, Aguiar AS, et al. The effect of intracuff alkalinized 2% lidocaine on emergence coughing, sore throat, and hoarseness in smokers. *Rev Assoc Med Bras (1992).* 2012; 58: 248-253. doi: 10.1590/S0104-42302012000200023

5. Hirota W, Kobayashi W, Igarashi K, et al. Lidocaine added to a tracheostomy tube cuff reduces tube discomfort. *Can J Anaesth.* 2000; 47: 412-414. doi: 10.1007/BF03018969

6. Huang CJ, Hsu YW, Chen CC, et al. Prevention of coughing induced by endotracheal tube during emergence from general anesthesia--a comparison between three different regimens of lidocaine filled in theendotracheal tube cuff. *Acta Anaesthesiol Sin.* 1998; 36: 81-86.

7. Altintas F, Bozkurt P, Kaya G, Akkan G. Lidocaine 10% in the endotracheal tube cuff: Blood concentrations, haemodynamic and clinical effects. *Eur J Anaesthesiol.* 2000; 17: 436-442. doi: 10.1097/00003643-200007000-00005