Egyptian Journal of Anaesthesia (2012) **28**, 139–142

Egyptian Society of Anesthesiologists

Egyptian Journal of Anaesthesia

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Research Article

Postoperative sore throat with 0.05% betamethasone gel and 2% lignocaine jelly used as a lubricant for ProSeal LMA (PLMA) insertion

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Received 4 October 2011; revised 21 November 2011; accepted 1 December 2011
Available online 26 December 2011

KEYWORDS

POST;
PLMA;
Betamethasone gel;
Lignocaine jelly

Abstract Postoperative sore throat (POST) is a minor complication after general anaesthesia. Many agents have been used as lubricant to reduce the incidence of POST with variable efficacy. We conducted a study to compare the incidence of POST with 0.05% betamethasone gel and 2% lignocaine jelly as a lubricant for PLMA insertion in patients undergoing general anaesthesia. Sixty subjects were divided randomly into two groups. Patients in Group I ($n = 30$) had 2.5 ml of 0.05% of betamethasone gel while the Group II had 2.5 ml of 2% lignocaine jelly applied on the cuff of PLMA. After standard induction and insertion of PLMA cuff inflated to 60 cm of H_2O and was maintained at the same throughout the surgery. In PACU, patients were inquired about sore throat at immediate and 24 h post operative period.

POST was not observed in any of the patients of Group I. In group II 33% of the patients had 1st degree and 10% had 2nd degree of sore-throat in immediate post-operative period. After 24 h 16%

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Peer review under responsibility of Egyptian Society of Anesthesiologists.
doi:10.1016/j.egja.2011.12.001

Production and hosting by Elsevier

patients had 1st degree sore-throat and 3% patients had 2nd degree of sore-throat in Group II patients. We conclude that lubricating cuff of PLMA with 0.05% of betamethasone gel is effective in reducing the incidence of POST.

1. Introduction

Postoperative sore throat (POST) though a minor complication after general anaesthesia can be distressing to the patients. This is because of lack of airway humidity, trauma during airway insertion and suctioning, high anaesthetic air flow rates and surgical manipulation of airway and adjacent tissue. Many agents have been used as lubricant to reduce the incidence of postoperative sore throat with variable efficacy [1,2]. We conducted a study to compare the incidence of postoperative sore throat with 0.05% betamethasone gel and 2% lignocaine jelly as a lubricant for ProSeal laryngeal mask airway (PLMA) insertion in patients undergoing general anaesthesia for elective surgery.

2. Methods

It was a comparative study done on 60 patients of either sex, aged between 18–60 years (ASA physical status I or II) undergoing general anaesthesia. Patients requiring surgeries of expected duration of more than 30 min and less than 4 h were included. Subjects were divided randomly in two groups by using sealed opaque envelopes, which were opened by the investigator just before the induction of anaesthesia. Assuming the proportion of sore throat with lignocaine as 0.5 and to test the specified difference in proportion of 0.4 with betamethasone group at 90% power the sample size comes out to be 30 patients in each group. It was a single blinded study. Only the subjects were blinded. After institutional ethical committee approval, written informed consent was obtained from all the patients. Patients having cervical spine disease, known airway obstruction, mouth opening less than 2.5 cm, any history of sensitivity to drugs i.e. lignocaine and betamethasone, with history of upper respiratory tract infections in the last 10 days, scheduled for oral, head and neck surgery, positioned in lateral or prone for surgery and patients who were at risk of aspiration were excluded from the study.

Patients in group I (n = 30) had 2.5 ml of 0.05% of betamethasone gel applied on the cuff of PLMA. Patients in group II (n = 30) had 2.5 ml of 2% lignocaine jelly applied on the cuff of PLMA. In operating room, after the establishment of intravenous line and attachment of standard monitors, a standard intravenous anaesthetic induction technique involving fentanyl, thiopentone sodium and vecuronium bromide was used in all the patients. Maintenance of anaesthesia was carried out using 33% oxygen in 67% nitrous oxide and isoflurane. PLMA of appropriate size was introduced after lubrication of the surface with 2.5ml 0.05% betamethasone gel (Betagel, Microlabs Ltd.) or 2.5 ml 2% lignocaine jelly. PLMA was introduced in deflated state with introducer technique. Cuff was then inflated with air to a pressure equivalent to 60 cm of H_2O, using manometer. Proper placement of PLMA was confirmed by sternal-notch test [3]. Intra-cuff pressure was monitored at 15, 30, 45, 60 and 90 min and just before extubation by using manometer. If cuff pressure was found to be increased, it was resettled to 60 cm of H_2O by deflating the cuff. At the end of surgery, patients were reversed with glycopyrrolate and neostigmine. In PACU patients were inquired about sore-throat at immediate and 24 h post-operatively and categorized as per Table 1 [4]. The results were analysed using percentages, proportions and chi-square test. The statistical analysis was carried out using SPSS version 10.0.

3. Results

The demographic data and duration of surgery were comparable in both the groups (Table 2). Post-operative sore-throat was not observed in any of the patients of group I. In group II, 33% of the patients had 1st degree and 10% had 2nd degree of sore-throat in immediate post-operative period. After 24 h 16% patients had 1st degree sore-throat and 3% patients had 2nd degree of sore-throat in group II patients (Table 3).

4. Discussion

In present study it was observed that the incidence of postoperative sore throat was significantly less when cuff of PLMA was lubricated with betamethasone gel as compared with lignocaine jelly. The incidence of POST following tracheal intubation and classic LMA has been observed to be 12–60% [5] and 7–34% respectively [6,7].

PLMA has gained popularity as a tool for airway management both in elective and emergency procedures for difficult airway [8–10]. Various studies have described the incidence of sore throat up to 23% after use of PLMA [11]. But to best of our knowledge there has not been any study on prevention of POST following PLMA insertion. Therefore there is a need to reduce POST following insertion of PLMA.

The issues related to POST have also been addressed in a recent editorial by Scuderi. He commented that sore throat is a lay description of pharyngitis which itself can have a variety of causes and may also include a variety of symptoms including laryngitis, hoarseness, cough or dysphagia [12]. The incidence of sore throat varies with use of different lubricants, degree of intra cuff pressures and number of attempts of airway device insertion [13].

Various lubricants have been used to reduce incidence of POST following LMA insertion with variable efficacy. De Villager et al compared xylocaine 10% spray, silko spray, endos

Table 1 Degree of sore throat.

0	No sore throat at any time since operation
1	Minimal sore throat (disappearing within 6 h)
2	Moderate sore throat (disappearing within 12 h)
3	Severe sore throat (lasting for 12 h or more)

Table 2 Demographic data and duration of surgery.

	Age (years) (mean ± S.D.)	Sex male female no. of patients	Weight (kg) (mean ± S.D.)	Duration of surgery (min) (mean ± S.D.)
Group I $n = 30$	32.12 ± 15.29	14 16	62.20 ± 2.47	45.00 ± 6.95
Group II $n = 30$	30.84 ± 8.87	17 13	60.83 ± 3.31	50.00 ± 5.25

$p > 0.005$

Table 3 Postoperative sore throat with 0.05% betamethasone gel and 2% lignocaine jelly.

Degree of sore throat	Immediate postop			After 24 h		
	Group I ($n = 30$) 0.05% betamethasone gel	Group II ($n = 30$) 2% lignocaine jelly	p value	Group I ($n = 30$) 0.05% betamethasone gel	Group II ($n = 30$) 2% lignocaine jelly	p value
Mild	0	13 (43.3)	0.000	0	5 (16.7)	0.036
Moderate	0	3 (10.0)	$p > 0.005$	0	1 (3.3)	$p > 0.005$

gel and water as lubricants for classic LMA and found that no single lubricant was associated with a statistically significant lower incidence of post operative sore throat [14]. McHardy and Chung in a review about POST commented that lubricants containing local anaesthetics do not appear to be beneficial but may actually be harmful [2]. 2% lignocaine jelly has also been implicated as a cause of transient bilateral recurrent laryngeal nerve palsy [15]. In a study comparing saline and lignocaine gel for occurrence of POST with classic LMA, the incidence of sore throat was found to be similar with both and author suggested that there is no role of lignocaine gel in prevention of post operative sore throat [16]. However Tanaka et al in a data based systematic review concluded that topical and systemic lidocaine is useful for prevention of post operative sore throat [17].

The efficacy of strepsil tablets, inhaled fluticasone propionate and benzydamine hydrochloride spraying on endotracheal tube cuff in reducing POST has also been evaluated recently [18–21].

As there is a potential role of inflammation in causation of POST, the role of topical steroids in reducing POST has been studied by various workers. Stride used 1% hydrocortisone water soluble cream on endotracheal tube cuff and found it to be ineffective [22]. Others compared betamethasone gel and lignocaine jelly for lubrication of endotracheal tube and found it to be effective in reducing post-operative sore throat [11,23,24]. Keeping in mind these studies, we used betamethasone gel for lubrication of PLMA. Dosage of betamethasone, we used i.e. 6.25 mg (2.5 ml of 0.05%) was within the safe limits. Betamethasone gel has been used for lubrication of ETT without any adverse effects such as flaring up of local subtle infection [4].

The role of intra cuff pressure in causing postoperative sore throat has been studied by some investigators, who found that a significant increase in cuff pressure is seen during first 60 min [25]. There is no consensus whether intra cuff pressure of LMA contributes to POST. Burgard et al. evaluated the effect of laryngeal mask cuff pressure on incidence of POST and found that POST can be reduced when cuff pressure is continuously monitored and kept on low pressure values [25]. Rieger et al. found that intra cuff pressure does not have any impact on POST following LMA insertion as high intra cuff pressure is unlikely to be transmitted directly to the mucosa; may be the elastic of the cuff stretches excessively and a proportion of the pressure measured is due to elastic recoil [26]. However, we checked intra cuff pressure several times during surgery and kept it at 60 cm of H_2O.

In our study we inserted PLMA using standard introducer technique, although it is documented that insertion by rotational technique i.e. rotation by 90°, may cause less pharyngeal trauma and sore throat [23].

In conclusion, lubricating the cuff of PLMA with betamethasone 0.05% gel may be effective in reducing the incidence of post operative sore throat following elective surgeries. Since the sample size in our study was small, further studies involving a large number of patients are required to establish the role of betamethasone gel in preventing post operative sore throat following PLMA insertion.

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