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## SCIENTIFIC ARTICLE

# Reducing sore throat following laryngeal mask airway insertion: comparing lidocaine gel, saline, and washing mouth with the control group

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### KEYWORDS

Sore throat;  
Laryngeal mask  
airway;  
Lidocaine;  
Washing mouth;  
Saline

### Abstract

**Background:** Laryngeal mask airway is still accompanied by complications such as sore throat. In this study, effects of three methods of reducing postoperative sore throat were compared with the control group.

**Methods:** 240 patients with ASA I, II candidates for cataract surgery were randomly divided into four same groups. No supplementary method was used in the control group. In the second, third and fourth groups, lidocaine gel, washing cuff before insertion, and washing mouth before removing laryngeal mask airway were applied, respectively. Anesthesia induction was done with fentanyl, atracurium, and propofol and maintained with propofol infusion. The incidence of sore throat was evaluated during the recovery, 3–4 h later and after 24 h using verbal analog scale. The data were analyzed by *t*-test, analysis of variance and chi-square using SPSS V11.5.

**Results:** Age, gender, duration of surgery and cuff pressure were the same in all the four groups. Incidence of sore throat at recovery room was highest in the control group (43.3%) and lowest in the washing mouth group (25%). However, no significant statistical difference was observed between these four groups (recovery,  $p=0.30$ ; discharge,  $p=0.31$ ; examination,  $p=0.52$ ). In this study, increased duration of operation had a significant relationship with the incidence of sore throat ( $p=0.041$ ).

**Conclusion:** Sore throat is a common postoperative problem, but no special method has been found completely efficient yet. In this study, cuff washing, lidocaine gel, and mouth washing before removing laryngeal mask airway were not helpful for sore throat.

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**PALAVRAS-CHAVE**

Dor de garganta;  
Máscara laríngea;  
Lidocaína;  
Lavagem da boca;  
Salina

## Redução da dor de garganta após a inserção de máscara laríngea: comparação de gel de lidocaína, salina e lavagem da boca com o grupo controle

**Resumo**

**Justificativa:** A máscara laríngea ainda é relacionada a complicações como a dor de garganta. Neste estudo, os efeitos de três métodos para reduzir a dor de garganta, no período pós-operatório, foram comparados com o grupo controle.

**Métodos:** Duzentos e quarenta candidatos, com estado físico ASA I-II, foram aleatoriamente divididos em quatro grupos iguais para a cirurgia de catarata com estado físico ASA I-II, candidatos para a cirurgia de catarata foram aleatoriamente divididos em quatro grupos iguais. Nenhum método complementar foi usado no grupo controle. No segundo, terceiro e quarto grupos, os métodos utilizados foram: Aplicação de gel de lidocaína, lavagem do manguito antes da inserção e lavagem da boca antes de remover a máscara laríngea, respectivamente. A anestesia foi induzida com fentanil, atracúrio e propofol e mantida com propofol. A incidência de dor de garganta foi avaliada durante a recuperação, 3-4 h depois e após 24 h usando uma escala verbal analógica. Teste-t, análise de variância e teste do qui-quadrado foram usados para a análise dos dados por meio do programa estatístico SPSS V11.5.

**Resultados:** Idade, gênero, tempo de cirurgia e pressão do manguito foram semelhantes em todos os quatro grupos. Na sala de recuperação, a incidência de dor de garganta foi maior no grupo controle (43,3%) e mais baixa no grupo lavagem da boca (25%). No entanto, não houve diferença estatisticamente significativa entre os quatro grupos (recuperação,  $p=0,30$ ; alta,  $p=0,31$ ; exame,  $p=0,52$ ). Neste estudo, o tempo mais longo de cirurgia apresentou relação significativa com a incidência de dor de garganta ( $p=0,041$ ).

**Conclusão:** Dor de garganta é um problema pós-operatório comum, mas nenhum método em especial foi considerado totalmente eficiente. Neste estudo, a lavagem do manguito, a aplicação de gel de lidocaína e a lavagem de boca antes de remover a máscara laríngea não foram úteis para evitar a dor de garganta.

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**Introduction**

Although anesthesiologists frequently use laryngeal mask airway because of its easy insertion and fewer complications, it is still associated with complications such as sore throat, which sometimes reduce patients' satisfaction and limit post-discharge activities. Occasionally, sore throat presents as dysphonia, dysphagia, and mucosal dryness. Sore throat is more common after tracheal intubation; however, some studies have reported equal incidence rates of sore throat following laryngeal mask and tracheal intubation.<sup>1</sup> This complication has even been reported in patients ventilated by mask.<sup>2</sup> Incidence of sore throat in laryngeal mask airways has been reported from 5.8% to 34%.<sup>3-5</sup>

Physical damage has been mentioned as the main reason of sore throat and various methods have been proposed for reducing sore throat following the use of laryngeal mask airways. Assuming that physical trauma during insertion of laryngeal mask airways causes pressure on salivary glands leading to decreased saliva production and sore throat, we washed patients' mouths with 20 mL saline before laryngeal mask airway removal and compared the results with other methods such as applying lidocaine and saline before insertion and the control group.

**Methods**

After the approval of the Deputy for Research of Mashhad University of Medical Sciences, this study was conducted in

Ophthalmology Hospital on 240 patients with ASA I-II who had undergone cataract surgery. This study was prospective, randomized, and double-blind. Exclusion criteria included age under 15, addiction, obesity, severe asthma or chronic obstructive pulmonary disease, failure of laryngeal mask airway insertion, sensitivity to lidocaine, sore throat and common cold symptoms.

After venous catheterization and injection of 5 mL/kg of saline, 1 µg/kg fentanyl, 0.2 mg/kg atracurium, and 2 mg/kg propofol were used for induction of anesthesia. After 2 min, laryngeal mask airways were inserted. Patients were randomly divided into four groups, each with 60 patients, using randomized block method. In the control group, laryngeal mask airway was inserted without lubricants. In the lidocaine group, lidocaine gel was used, and in the saline group, laryngeal mask airway was washed with saline before insertion. In the fourth group, patients' mouths were washed with 20 mL of saline before laryngeal mask airway removal. Laryngeal mask airways were inserted by the same person using 90-degree rotation method and semi-full cuff. In this method, laryngeal mask airway is entered from the right side of the mouth and, after passing the tongue, it is rotated. Then, the cuff was filled with air, based on the size (20 cm<sup>3</sup> for no. 3 and 30 cm<sup>3</sup> for no. 4) and cuff pressure was measured. Anesthesia was maintained with 100–150 µg/kg/min propofol and 50% O<sub>2</sub> and N<sub>2</sub>O. At the end of the surgery, after return of breath, neostigmine and atropine were injected and laryngeal mask airway was removed.

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