

Chapter 7

Research on Assessing Lidocaine, Ketamine, and Dexamethasone for Airway Complications

R. M. Mulla

Krishna Vishwa Vidyapeeth, India

V. M. Joshi

Krishna Institute of Medical Sciences, India

P. B. Patil

Krishna Institute of Medical Sciences, India

Kiran Kumar Thoti

 <https://orcid.org/0000-0002-6678-9425>

Universiti Malaysia Kelantan, Malaysia

ABSTRACT

Postoperative sore throats, hoarse voice, and emergency coughing are complications that can cause discomfort and dissatisfaction for patients after endotracheal intubation. This study aimed to assess how well three intracuff treatments reduced these problems while maintaining safety. Three hundred adult patients receiving elective surgery under general anaesthesia participated in a randomised, double-blind clinical experiment. Random assignments were made to provide intracuff alkalized lignocaine, lignocaine combined with ketamine, or lignocaine combined with dexamethasone to the participants. The incidence of emergent coughing, painful throat following surgery, and hoarseness of voice were measured as the initial outcomes as soon as the patient was extubated. Unfavorable incidents were also noted.

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INTRODUCTION

In anaesthesia and critical care medicine, endotracheal intubation is a commonly used technique that facilitates mechanical ventilation and airway control during surgical procedures and in patients who are critically ill (Tak & Sundararajan, 2023). It is not without difficulties and drawbacks, though (Kim et al., 2013). Adverse effects, including postoperative sore throat, hoarseness of voice, and emerging coughing, are common in patients receiving endotracheal intubation (Farhan et al., 2019). Even though these issues are usually temporary and not life-threatening, they can greatly influence patient comfort, satisfaction, and the standard of treatment as a whole (Liu et al., 2022).

In order to secure the airway and prevent aspiration, endotracheal intubation entails inserting a tube through the voice cords into the trachea and inflating a cuff (Tak et al., 2023). Numerous issues may arise from the endotracheal tube's physical presence inside the trachea and the cuff that goes with it. Emergence coughing, postoperative sore throats, and hoarseness of voice are some of the most frequent and concerning side effects (Krishna Vaddy, 2023).

The sudden, violent, and involuntary release of air from the lungs during the period right after extubation or the emergence from anaesthesia is known as "emergence coughing" (Rasul et al., 2023a). Particularly in neurosurgical patients, it is linked to elevated sympathetic activity and elevated intracranial and intraocular pressure and can result in problems such as surgical haemorrhage, disruption of sutures, and elevated intracranial pressure (Cho et al., 2016).

After endotracheal intubation, another common ailment is a postoperative sore throat or POST. It is typified by localised throat pain, irritation, or discomfort that frequently lasts for a few days after surgery (Zanguoie et al., 2016). POST has been identified by patients as a major cause of discomfort and discontent following surgery, affecting their ability to speak, swallow, and heal (Lam et al., 2015).

Voice hoarseness is yet another typical side effect. Patients may notice a change in the quality of their voice, which is occasionally accompanied by phonation difficulties (Sneha & Thapar, 2019). Illness and edoema of the vocal cords or damage to the vocal cords during intubation or extubation may cause hoarseness (Tanaka et al., 2015).

Many approaches have been put up to deal with these issues, and one that has received a lot of attention lately is the use of intracuff pharmaceutical therapies (Rasul et al., 2023b). It is possible to directly apply pharmacological drugs to the region around the tracheal cuff through intracuff administration. Intracuff medication delivery aims to address the source of difficulties and lessen the negative effects of endotracheal intubation (Neisan et al., 2023).

The potential of lignocaine, a local anaesthetic, to lessen the problems related to endotracheal intubation has been extensively researched (Rafi et al., 2021). It lowers irritation to the mucosa lining the airways through local anaesthesia. Since lignocaine has been given intracuff in an alkalinized form, it is thought to be more effective at increasing the cuff's pH and lowering irritation (Ahmady et al., 2013; Safavi et al., 2014). It is hypothesised that this alkalinized version of lignocaine reduces the acidity and irritation to the tracheal mucosa, reducing the incidence of POST and hoarseness (Kothuru, 2023).

The anaesthetic drug ketamine, which also has analgesic qualities, has demonstrated the potential to lessen emergent coughing (D'Aragon et al., 2013). The way that ketamine works is that it can reduce the reflex reaction to airway irritation, which lessens the likelihood of coughing (Lee et al., 2011). This procedure has the potential to be very helpful in lowering the risks connected to extubation and emergence from anaesthesia.

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