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A COMPARATIVE STUDY ON THE INCIDENCE OF POSTOPERATIVE SORE THROAT AFTER ENDOTRACHEAL CUFF INFLATION WITH AIR VS. LIGNOCAINE

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Abstract: POST, or postoperative sore throat, is a typical ailment after general anesthesia-induced endotracheal intubation. In this study, the incidence and severity of POST in patients having general anaesthesia with air versus lignocaine endotracheal cuff inflation will be compared.
Material and Methods: Two groups of 60 patients were randomly allocated to either Group A (lignocaine-inflated endotracheal cuff) or Group B (air-inflated endotracheal cuff).
Conclusion: The findings imply that lignocaine is beneficial in reducing post-intubation pain since the group experienced a considerably decreased incidence of sore throat.
Keywords: Sore Throat, endotracheal intubation, Hoarseness, coughing

INTRODUCTION:

In general anaesthesia, endotracheal intubation is a common operation that makes airway protection and mechanical ventilation easier. However, because of mucosal irritation and elevated intra-cuff pressure, it is linked to problems including coughing, hoarseness, and sore throat. According to research, using lignocaine rather than air to inflate the endotracheal tube (ETT) cuff may lessen the frequency and intensity of POST. Hailu S *et al.*, Sakae TM *et al.* [1,2] The purpose of this study is to evaluate how well lignocaine and air reduce post-operative pain after endotracheal intubation.

MATERIALS AND METHODS

Study Design: 60 patients undergoing general anaesthesia participated in a comparative observational study. Two groups were randomly selected from among the patients:

- **Group A (n = 30):** Endotracheal cuff inflated with 2% lignocaine.
- **Group B (n = 30):** Endotracheal cuff inflated with air.

Inclusion Criteria:

- ASA grade 1 & 2 patients.
- Age range: 18–65 years.
- Elective surgeries requiring general anesthesia.

Exclusion Criteria:

- Patients with pre-existing respiratory or cardiovascular conditions.
- Difficult airway (Mallampati grade 3 and 4).
- Head and neck surgeries.
- Surgeries expected to last less than 120 minutes.

Procedure: The night before surgery, oral ranitidine (150 mg) and alprazolam (0.5 mg) were administered as premedication to all patients. Propofol (2 mg/kg) and succinylcholine (2 mg/kg) were used to establish general anaesthesia in order to relax the muscles. Depending on the group assignment, the ETT cuff was either inflated with air or 2% lignocaine. Atracurium, sevoflurane, nitrous oxide, and oxygen were used to maintain anaesthesia.
Assessment of POST: A Visual Analogue Scale (VAS) was used to measure POST at 15, 1, 3, 12, and 24 hours after extubation. Hoarseness, coughing, and dysphonia were among the other post-intubation symptoms noted. ANOVA and independent t-tests were used for statistical analysis, and a p-value of less than 0.05 was deemed significant.

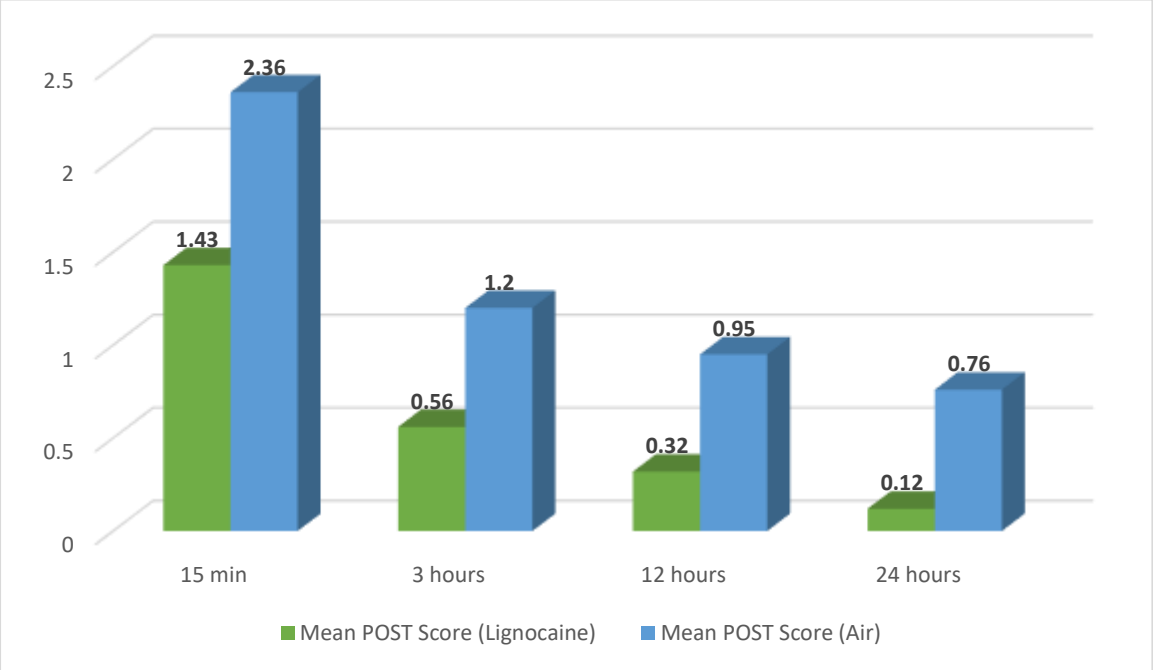
RESULTS

At every time point, the lignocaine group experienced a considerably lower incidence of POST than the air group.

Table 1: Time Interval

Time Interval	Mean POST Score (Lignocaine)	Mean POST Score (Air)	t-value	p-value
15 min	1.43	2.36	7.288	0.000**
3 hours	0.56	1.20	5.317	0.000**
12 hours	0.32	0.95	4.865	0.001**
24 hours	0.12	0.76	3.921	0.002**

The mean POST (Postoperative Sore Throat) scores for the two groups—Lignucaine and Air—at various points in time following a surgery are contrasted in this table. To ascertain the importance of the differences, the table provides statistical metrics such the t-value and p-value.



Figure

Key Observations:

- **Mean POST Scores**: At all time intervals (15 min, 3 hours, 12 hours, and 24 hours), the **Lignocaine group** consistently shows lower mean POST scores compared to the **Air group**, suggesting that Lignocaine reduces postoperative sore throat.
- **t-value**: The **t-values** are positive, indicating that the POST scores for the Air group are significantly higher than those for the Lignocaine group.
- **p-value**: All p-values are less than 0.05, with some being **0.000 or 0.001**, denoted by "**", indicating strong statistical significance.

DISCUSSION

The results of this investigation are consistent with earlier studies showing that lignocaine diffusion over the ETT cuff lessens irritation of the tracheal mucosa. Gaur P *et al.*, Sony S *et al.* [3, 4] Its local anaesthetic qualities, which aid in reducing the inflammatory response and averting intra-cuff pressure fluctuations, are responsible for the lower incidence of POST in the lignocaine group. Wallen SL *et al.* [5] Furthermore, lignocaine keeps nitrous oxide from diffusing into the cuff, preserving steady pressure and minimising mucosal damage. Liang J *et al.* [6] A number of different approaches have been investigated to lower POST, such as humidified oxygen, preoperative steroids, and reduced ETT sizes. Wang G *et al.* [7] Lignocaine is still a useful and efficient treatment, nonetheless, with little extra expense and no significant side effects. Budania LS *et al.*[8]

According to these findings, lignocaine-assisted ETT cuff inflation is a quick and easy way to reduce post-intubation morbidity, particularly in patients having lengthy procedures. Lu R *et al.*, Armstrong J *et al.* [9,10] Multicenter trials and higher sample numbers are required for future research to validate these results.

CONCLUSION

Compared to air, using lignocaine to inflate the endotracheal tube cuff dramatically lowers the frequency and intensity of postoperative sore throat. After surgery, this little change in anaesthesia technique can improve patient comfort and satisfaction. Lignocaine should be regarded as a normal treatment for endotracheal cuff inflation in regular anaesthetic operations due to its efficacy and convenience of use

Future Recommendations

- More extensive multicenter studies to confirm results.
- Research on the ideal lignocaine concentration and the effects of alkalinisation.
- Assessment of additional local anaesthetics for inflating of the cuff.

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