ORIGINAL ARTICLE

A comparison of Ketamine and Benzydamine hydrochloride gargles to alleviate post-operative sore throat pain

Shakil Malik, Zamir Ahmad, Shaheera Shakeel Malik, Muhammad Faisal Farooq, Mohammad Sidique, Sagar Khurana

Abstract:
This study aims to assess how well benzydamine hydrochloride gargles, when combined with ketamine, prevent post-operative nausea and vomiting POST in patients who have undergone general surgery.
Research design: One-way, randomised control study with single blind.
Place: Department of Anesthesiology, Pain Management, and Intensive Care Unit, DUHS
Material and Methods: Included were sixty patients who were enrolled for a general surgical operation under anaesthesiawith endotracheal intubation and who had ASA I and II status. Two groups of 30-patients each were created. Group K was given 40mg of ketamine in 30 millilitres of normal saline. Group B were given 30 millilitres of ordinary saline mixed with 15 millilitres of benzodamine hydrochloride (0.15%). Patients were instructed to bathe this combination for 30-seconds 5-minutes before anaesthesia was administered. A four-point grading system (0–3) was used to evaluate post-operative sore throat (POST) at 4, 8, and 24 hours after extubation.
Results: 4, 8, and 24 hours after surgery, Group K had more sore throats than Group B. Furthermore, at 24 hours, a greater number of patients in Group K compared to Group B had post-operative problems (P<0.05).
Conclusion: The use of benzoydamine hydrochloride flash lowers the frequency and intensity of bleeding following child birth.

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Introduction:
General anaesthesia is a commonly utilisedanaesthetic technique for both urgent and elective procedures worldwide. Most patients need tracheal intubation, which can lead to post-operative sore throat (POST), one of the frequent side effects of this procedure that includes pain, coughing, dry throat, dysphagia, and hoarseness.[1,2] Post-operative sore throat can be brought on by local injury, injury related to the pharynx mucosa from laryngoscopy, injury related to endotracheal intubation, or both.

Several studies have shown that post-operative sore throat occurs 40%–100% more frequently in western populations. In our hospital, post-operative sore throat occurred 46.6% of the time in patients who were intubated with an endotracheal tube.[5] It's a minor difficulty that gets overlooked. To lessen post-operative sore throat, numerous pharmacological and non-pharmacological methods were attempted, with varied degrees of success. Non-pharmacological options for lowering post-operative sore throat include lubricating the tube with water-soluble jelly, using smaller tubes, implementing full relaxation intubation, lowering the pressure on the cuff, and extubating in a deeper plane of anaesthesia. Pharmacological techniques included beclomethasone inhalation, benzydamine hydrochloride, licorice, ketamine, gargling with azulene sulfonate, filling an intracuff[7] with alkalized lignocaine, and delivering betamethasone jell locally.

Table 1: Comparison characteristics between groups n=60

Variables	Group K (n=30)	Group B (n=30)	P-Values
Age (Years)	38.40±14.56	39.97±12.08	0.65
Weight (kg)	59.70±12.33	60.10±10.58	0.89
Height (cm)	163.78±9.51	165.01±9.95	0.62
Duration of anesthesia (Min)	109.67±50.95	112±45.06	0.85

Independent sample t test applied

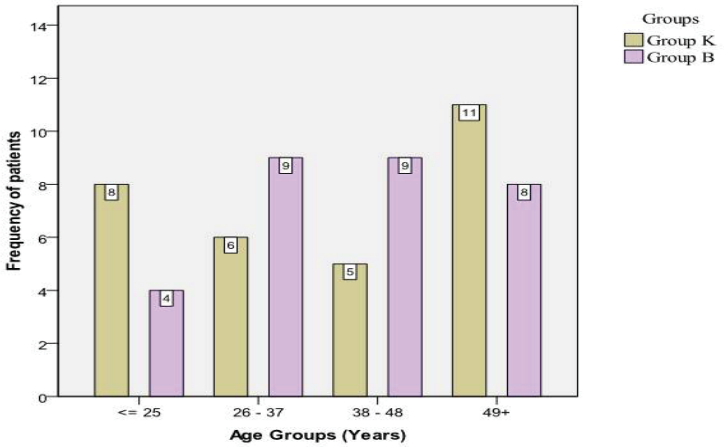

Figure 1: Age distribution with respect to groups

Ketamine is an intravenous anaesthetic that also acts as an antagonist of the NMDA receptor. Benzydamine hydrochloride's (NSAID) analgesic, local anaesthetic, and anti-inflammatory actions, however, might be mediated through the prostaglandin system. As far as we are aware, Pakistan lacks published data on this subject, hence in a low resource situation, this study would help to close the gap.

Material and Methods:

This study will be conducted with approval from the CPSP and the DUHS, Karachi ethical committee. Prior to surgery, patients will be selected at random from the general surgery outpatient department after being assessed for inclusion and exclusion criteria. Their agreement will be requested in writing. The patients were divided into two pairs. Group (K) received 40 mg of ketamine in 30 ml of saline from the staff nurse, while Group (B) received 15ml of benzydamine hydrochloride (0.15%) in 30ml of saline. After entering the operation room, the patients were instructed to use this solution to rinse their mouths for 30 seconds.

Five minutes later, anaesthesia was injected, maintained intravenously after regular NIBP, pulse oximetry, and ECG monitoring had been administered. The patient got an injection once their oxygenation level reached 100%. injection of nalbuphine (0.1mg/kg). infusion of propofol and 2mg/kg. A large volume, low pressure cuff is used to intubate the trachea after administering Accuron at a dose of 0.5mg/kg. Air is poured into a sterile polyvinyl chloride (PVC) endotracheal tube (size 7.5 for females and 8.0 for males) until no audible leak is detected. After ensuring the greatest neuromuscular blocking effect, tracheal intubation will be performed by a senior anesthesiologist. Following intubation, incremental injections of Inj, 33% oxygen, 67% nitrous oxide, and 0.8–2% isoflurane will be used to maintain a balanced general anaesthesia technique that uses regulated breathing. Atracurium to maintain a constant level of neuromuscular inhibition. Remaining atracurium relaxation will be reversed by injection. Neo-pyrolate after an operation. Oropharyngeal suction is used to eliminate secretions and avoid tissue damage prior to extubation.

An examiner will assess the patients following the procedure, and post-operative sore throat will be categorised as having either no sore throat (scale 0) or a painful throat (scale 1 to 3). There will be evaluations 4, 8, and 24 hours following the surgery. If post-operative sore throat is maintained between scales 1 and 3 for longer than 24 hours, the treatment plan will be considered ineffective.

Data Analysis:

Data analysed with the statistical software SPSS-12. Recurrence and rate were computed for categorical characteristics such gender, age groups, ASA status, and post-operative sore throat. The 95% confidence interval, Standard deviation, and Mean were computed for a number of quantitative values, including weight, height, age, and duration of anaesthesia. An independent sample t-test was performed to compare mean weight, height, age, and duration of anaesthesia. The chi-square test was used to compare the ASA status, post-operative sore throat rates, and gender

Table 2: Comparison of severity of post-operative sore throat with respect to time

Grading of discomfort	4 hours		8 hours		24 hours	
	Group K n=30	Group B n=30	Group K n=30	Group B n=30	Group K n=30	Group B n=30
Mild	13(43.3%)**	9(30%)	10(33.3%)**	7(23.3%)	11(36.7%)***	5(16.7%)
Moderate	3(10%)**	1(3.3%)	2(6.7%)**	0(0%)	1(3.3%)**	0(0%)
Severe	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Total	16(53.3%)*	10(33.3%)	12(40%)*	7(23.3%)	12(40%)***	5(16.7%)

**p>0.05 not significant difference between groups.*

*** p>0.05 not significant difference in mild and moderate sore throat*

**** P<0.05 significant*

1, Mild sore throat

2, moderate sore throat

3, severe sore throat

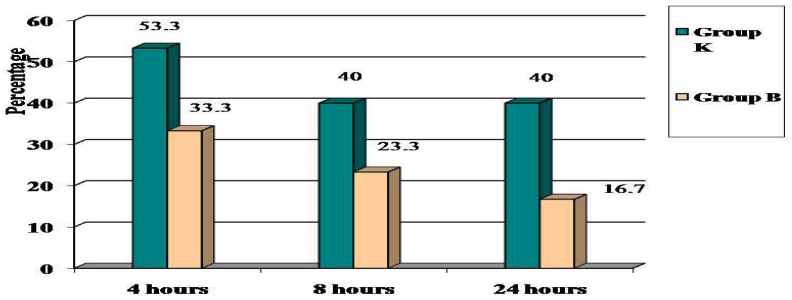

Figure 1: Percentage of post-operative sore throat between groups in different time intervals

rates between groups. A significance threshold of P<0.05 was applied.

Results:

There were 60-patients divided into two equal groups. Thirty patients in Group B received treatment with 15ml of benzydamine hydrochloride, while 30-patients in Group K received treatment with 40mg of ketamine in 30ml of saline. The age distributions for the different groups are displayed in figure 1. The patient's age was 39.18±13.29 years on average (95% CI: 35.75 to 42.62). The average height, weight, and duration of anaesthesia are also displayed in Table 1. Table 1 demonstrates that there was no appreciable variation in the groups' height, weight, age, or duration of anaesthesia.

38(63.3%) and 22(36.7%) of the 60-patients were female. Between these groups, there was no appreciable gender difference (p=0.99). There was no statistically significant difference in the ASA status between the 43 instances (71.7%) and 17 patients (283.3%) that had ASA-II observed.

At 24 hours following surgery, the overall rate of sore throat was 28.3% (17/60). According to table 2, group K experienced a significantly greater rate of postoperative sore throat after 24 hours (40% vs. 16.7%; p=0.04) than group B. In a similar vein, figure 2 shows the post-operative sore throat severity rate over time. After 24 hours, only moderate post-operative sore throat revealed a statistically significant difference between groups K and B (36.7 vs. 16.7%; p<0.05). At 4, 8, and 24 hours, Group K also had moderate post-operative sore throat. Severe post-operative sore throat was not seen in the research. Table 4 and Figure 2, which display the percentage of postoperative sore throat, demonstrate that group K had significantly higher post-operative sore throat than group B after 24 hours, but overall, there was no statistically significant difference between the groups at 4 and 8 hours.

Post-operative sore throat between groups for age groups was shown in Figure 1. Group K's post-operative sore throat rate was significantly greater than group B's in the 38–48 age range (p=0.023); no significant difference was seen in the post-operative sore throat rates between the groups in the other age categories. Table 1 demonstrates that height, weight, or gender had no bearing on the sore throat.

Discussion:

We discovered that post-operative sore throat is less common and less severe following preoperative gargling with benzydamine hydrochloride than following ketamine swishing in surgical patients undergoing endotracheal intubation for up to 24 hours.

In our study, the benzydamine hydrochloride group had a significantly lower incidence (16.7%) than the ketamine group (40%) did. The incidence of post-operative sore throat is reduced in both groups when we compare it to data from worldwide studies and our hospital.

Age, gender, intubation, pain, or length of operation were not shown to be correlated in our study. According to recent studies, NMDA receptor antagonists administered peripherally may be associated with antinociception.[10,11] Both the central nervous system and peripheral nerves have been found to include NMDA receptors.[12,13]

These effects could be attributed to the prostaglandin system.[14] BH is an NSAID with analgesic, local anaesthetic, antimicrobial, and anti-inflammatory properties.[15] Mouth wash swish has a lower systemic absorption than vaginal and rectal doses of BH; although local drug concentrations are comparable, the likelihood of any systemic side effects is significantly decreased.[16]

One drawback of our study is that we are unable to rule out the possibility of a systemic effect due to the lack of plasma levels for both drugs.

Conclusion:
Post-operative sore throat is seen in our study as a consequence of general anaesthesia used in conjunction with surgical procedures. At least from the standpoint of anaesthetists, this is a serious and common issue that should be avoided. Moreover, we showed that gargling benzydamine hydrochloride effectively decreased sore throats following surgery while having little to no negative side effects.

Conflict of interest: None

Funding source: None

Role and contribution of authors:
Shakil Malik, concept and study strategy.

Zamir Ahmed, acquiring and assessing

Shaheera Shakeel Malik, composing and analysing written works.

Mohammad Faisal Farooq, composing and revising significant content.

Mohammad Sidique, revision and analysis of data.

Sagar Khurana, examine responsibility and accuracy.

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