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SORE THROAT;

COMPARISON OF KETAMINE NEBULISATION WITH KETAMINE GARGLES IN ATTENUATING POSTOPERATIVE SORE THROAT.

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ABSTRACT… Objectives: To compare the effect of ketamine nebulization and ketamine gargle on post operative sore throat. **Study Design:** Randomized control trial. **Setting:** Department of Anaesthesia Ibn e Sina Hospital. Multan and National, Lahore. **Period:** May 2016 to May 2017. **Methodology:** After provision form ethical committee and informed consent to be included in study. Patients of age 20-60 years, ASA status I and II, elective surgeries under GA and both sex were included in the study through consecutive sampling technique. SPSS software was used to analyze all variables included in the study continuous variables were measured and presented as mean and standard deviation, categorical measurement were measured in numbers and percents. Chi square test was applied to check the difference among both groups. P value ≤ 0.05 was considered as significant. **Results:** Overall, 100% (n=160) patients were included, in this study; divided into two equal groups, 50% (n=80) in each, gargled ketamine group (GK group) and nebulization group (NK group) respectively. The incidence of postoperative sore throat at 0, 2, 4, and 24 hours, in GK group, was (n=8) 40%, (n=4) 20%, (n=3) 15% and (n=3) 15%respectively. While, at corresponding time point in group NK it was (n=1) 5%, (n=7) 35%, (n=4) 20% and (n=2) 10%respectively. **Conclusion:** The observations of our study revealed that ketamine nebulization and ketamine gargles having no significant difference in reduction of POST incidence.

Key words: Endotracheal Tube, Gargle, Ketamine, Nebulization, POST.

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INTRODUCTION

As a result of general anesthesia post operative sore throat (POST) is a common complication which is ranked 8th by the American anesthesiologists.[1] Its incidence is 21 to 65% in the world. It is necessary and need of modern health care system to be care about morbidity and mortality and other post operative complications.[2,3,4] Causes of POST has been reported in my studies and literature available as mucosal damage due to endotracheal tube, intra cuff pressure, duration of surgery, size of throat pack and endotracheal tube and difficult intubation.[5,6]

To reduce the incidence of POST many pharmacological and Jon pharmacological method have been used but results and outcomes is different.[7,8] A phencyclidine derivative drug Ketamine is also in list to reduce its incidence, it is a N methyl Aspertic acid NMDA receptors antagonist.[9] NMDA receptors are located in Central and peripheral nerves. In many studies mechanism of NMDA receptors antagonists have been explained. These drugs inhibit the nociception and inflammatory response to stop POST.[10,11]

Role of Ketamine gargle in reduction of POST have been reported in many studies.[12] Some of its limitations may include bitter and unpleasant taste and risk of aspiration on use of large volume of jelly.[13] To overcome these limitations another mode of its delivery is nebulization of Ketamine for gargling through which bitter taste and use of large volume can be avoided. In this study we compare the efficacy of Ketamine gargle and Ketamine nebulization in reduction of incidence and intensity of POST.[14]

METHODOLOGY

This randomized control trial was conducted the department of anaesthesia Ibn e Sina Hospital, Multan and National Hospital, Lahore. From May 2016 to May 2017 after provision form ethical committee and informed consent. Patients of age 20-60 years, ASA status I and II, elective surgeries under GA and both sex were included in the study through consecutive sampling technique. Patients with known history of asthma, COPD, pre operative score throat, use of anti inflammatory drugs, smoking, mallum patti score more than 2 and prolong period of intubation were excluded from the study. One day before surgery patients anesthetic assessment was done and pre operative medication was done with tablet bromazepam 2mg oral night before surgery. Patients were divided into two groups by lottery method. Groups were labeled as GK group and NK group.

Patients in GK group received Ketamine gargle (30 ml of gargle solution made up of 50 mg Ketamine 1 ml mix with 29 ml normal saline). Patients must gargle for 30 seconds, to avoid swallowing gargle divided into two parts. Patients in group NK were nebulized with 50 mg 1 ml Ketamine mixture with 4 ml normal saline and patients were nebulized for 15 minutes through oxygen. Standard monitoring was done with ECG, pulse oximeter, end tidal carbon dioxide and non invasive blood pressure. Premedication with injmedazolam 0.03 mg/kg and injglycopyrolate 4 micro gram per kg was done. Atracurium bromide 0.1 mg/kg was given to facilitate endotracheal intubation. Intubation was done by consultant anesthesiologist having experience more than 5 years in this field. Female patients were intubation with 7 to 7.5 cm endotracheal tube and male were intubated with 8 to 8.5 cm endotracheal tube through trachea after lubrication with 2% lignocain gel. Cuff was inflated with air pressure 15 cm of water. Isoflurane and oxygen 40% with air was used to maintained general anesthesia. During surgery analgesia was maintained with Nalbuphine injection. Injection dexamethadsone and ondesteron was administered before completion of surgery. After complete evaluation for extubation criteria patients were extubation and for control of pain paracetamol injection 1 g was given and repeated after 6 hours. For evaluation of POST patients were interviewed for sore throat at 1 hour, 2 hour, 4 hour and 24th hour. Grading criteria for POST was as follows;

Score 0 no sore throat,
Score 1 mild sore throat,
Score 2 moderate sore throat,
Score 3 severe sore throat.[15]

SPSS software was used to analyze all variables included in the study continuous variables were measured and presented as mean and standard deviation, categorical measurement were measured in numbers and percents. Chi square test was applied to check their association. P value ≤ 0.05 was considered as significant.

RESULTS

Overall, 100% (n=160) patients were included, in this study; divided into two equal groups, 50% (n=80) in each, gargled ketamine group (GK group) and nebulization group (NK group) respectively. The mean age, weight and duration of anaesthesia of the GK group patients was 43.64±5.59 years, 58.22±4.83 kg and 125.53±3.98 minutes respectively. There were 62.5% (n=50) males and 37.5% (n=30) females. While, the mean age, weight and duration of anaesthesia of the NK group patients was 45.68±3.27 years, 59.79±4.11 kg and 132.14±5.10 minutes respectively. There were 65% (n=52) males and 35% (n=28) females. Significant difference was found between age (p=0.003), duration of anaesthesia (p=0.000) and weight (0.035), in groups, except gender (p=0.742) (Table-I).

The incidence of postoperative sore throat at 1, 2, 4, and 24 hours, in GK group, was (n=8) 40%, (n=4) 20%, (n=3) 15% and (n=3) 15%respectively. While, at corresponding time point in group NK it was (n=1) 5%, (n=7) 35%, (n=4) 20% and (n=2) 10%respectively. The differences between the groups were not statistically not significant. (Table-II). Severity among the groups at 0, 2, 4, 24 hours mild sore throat, in GK group, was observed in (n=3) 15%,

(n=5) 25%, (n=5) 25% and (n=5) 25% patients respectively. Moderate sore throat was observed in (n=2) 10%, (n=2) 10%, (n=1) 5% and (n=1) 5% patients respectively. In NK group, at 1, 2, 4, 24 hours, mild sore throat was observed in n=2, 10%, n=3, 15%, n=2, 10% and n=1, 5% patients respectively. Moderate sore throat was observed in (n=1) 5%, (n=1) 5%, (n=1) 5% and (n=0) 0% patients respectively. No significant differences in mild and moderate sore throat were noted in both the groups. None of the patients in both the groups had severe sore throat. No systemic side effects were noted in both groups. (Table-II)

Variable	GK Group n=(80)	NK Group n=(80)	Test of Sig.
Gender			
Male	n=50, 62.5%	n=52, 65%	χ^2=0.108 p=0.742
Female	n=30, 37.5%	n=28, 35%	
Total	n=80, 100.0%	n=80, 100%	
Age			
20-40 years	n=20, 25%	n=6, 7.5%	χ^2=9.00 p=0.003
41-60 years	n=60, 75%	n=74, 92.5%	
Total	n=80, 100.0%	n=80, 100.0%	
Weight			
45-60 kg	n=55, 68.8%	n=42, 52.5%	χ^2=4.43 p=0.035
61-70 kg	n=25, 31.2%	n=38, 47.5%	
Total	n=80, 100.0%	n=80, 100.0%	
Descriptive Statistics			
Age	43.64±5.59 years	45.68±3.27 years	-------
Weight	58.22±4.83 kg	59.79±4.11 kg	-------
Duration of anaesthesia	125.53±3.98 minutes	132.14±5.10 minutes	t=-9.15 p=0.000

Table-I. Demographic variables

Grading of Discomfort	Number of Patients							
	1 Hours		2 Hours		4 Hours		24 Hours	
	Gk n=80	Nk n=80	Gk n=80	Nk n=80	Gk n=80	Nk n=80	Gk n=80	Nk n=80
No sore throat	n=16, 80%	n=13, 65%	n=17, 85%	n=16, 80%	n=15, 75%	n=19, 95%	n=13, 65%	n=17, 85%
Mild sore throat	n=3, 15%	n=2, 10%	n=5, 25%	n=3, 15%	n=5, 25%	n=2, 10%	n=5, 25%	n=1, 5%
Moderate sore throat	n=2, 10%	n=1, 5%	n=2, 10%	n=1, 5%	n=1, 5%	n=1, 5%	n=1, 5%	n=0, 0%
Severe sore throat	n=0, 0%	n=0, 0%	n=0, 0%	n=0, 0%	n=0, 0%	n=0, 0%	n=0, 0%	n=0, 0%
Total no of patients having post	n=8, 40%	n=1, 5%	n=4, 20%	n=7, 35%	n=3, 15%	n=4, 20%	n=3, 15%	n=2, 10%
P-value	0.546		0.233		0.265		0.456	

Table-II. Inter group comparison of incidence and severity of post-operative sore throat (POST)

DISCUSSION

Sore throat after surgical procedures is a common complication due to general anesthesia and it was the cause of number of morbidities. In a study Loeser EA[16,17].

Reported that not only the irritation to the patents POST also responsible for prolong hospital stay. In many studies it was reported that gargle with ketamine solution reduce the incidence of POST about 40 to 50% and its incidence was found at its maximum level at 2-4 hours of surgery.[18]

In our study incidence of postoperative sore throat at 0, 2, 4, and 24 hours, in GK group, was (n=8) 40%, (n=4) 20%, (n=3) 15% and (n=3) 15%respectively. While, at corresponding time point in group NK it was (n=1) 5%, (n=7) 35%, (n=4) 20% and (n=2) 10%respectively p=0.546 at 0 hour, p=0.233 at 2 hours, p= 0.265 at 4 hours and p= 0.456 at 24 hours which shows that there is no significant difference in both groups. The differences between the groups were not statistically significant. Results of our study are against the studies conducted by Canbay O and Ahuja V et al[10,14].

Who reported less incidence of POST in nebulisation group (NK) as compare to gargle group (GK).

A similar study was conducted by Khatavkar SS et al reported in his study that in management of POST ketamine is equally effective in gargle, rectal and nasal route[19].

Results of this study identical to our findings. In some studies Zhu MM et al did experiments on animal (rats) and confirmed the anti inflammatory response of ketamine and its peripheral anti nociception.[20,21].

In 2016 Amingad B conducted a study on this topic and reported nebulisation with ketamine is an effective and better alternate of ketamine gargle for elimination of POST[22].

These findings are also against our findings and conclusion.

It was also reported in some studies that experience of anesthetist for intubation also have significant contribution in reduction of POST[23].

As in our study all intubations done by consultant having five year experience in intubation procedure. At the same time Jaensson et al[24] reported similar findings. Meanwhile Edomwonyi et al[25].

Concluded that experience of anesthesiologist doesn't matter for reduction of POST.

In a study Ratnaraj J[26] reported that mainatinance of cuff pressure at 22 cm of water reduce the incidence of POST, in our study we maintaine this presuure at 20 to 22 cm of water. In our procedure we use heat moist exchanger as recommended that humidified gas can reduce the chances of POST.

CONCLUSION

The observations of our study revealed that ketamine nebulisation and ketamine gargles having no significant difference in reduction of POST incidence.

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