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Original Research

Role of budesonide suspension on occurrence of POST in surgical patients following endotracheal intubation

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ABSTRACT:
Background: Post-operative sore throat (POST) and hoarseness of voice are common complaints from patients receiving tracheal intubation. The present study was conducted to assess role of inhaled budesonide suspension on occurrence of POST in surgical patients following endotracheal intubation. **Materials & Methods:** 110 patients scheduled for short electivelaparoscopic surgeries under generalanaesthesia with endotracheal intubationwere divided into 2 groups of 55 each. Group I received 200 µg budesonide inhalation suspension, using a metered dose inhaler, 10 min before intubation, and repeated 6 hours after extubation. In group II, no such intervention was performed. The incidence and severity of POST was recorded in all patients. The incidence of post-operative hoarseness and cough was also recorded. **Results:** There were 30 males and 25 females in group I and 28 males and 27 females in group II. ASA statusI was seen in 30 males and 25 females in group I and II in 30 males and 25 females. Mallampatti score1 was seen in 32 in group I and 36 in group II. Score 2 was seen in 25 in group I and 19 in group II. Number of attempts atintubation was 1 in 50 and 42 and 2 seen among 5 and 13 in group I and II respectively. Rescue therapy for POST was seen among 6 in group I and 20 in group II. The difference was significant (P< 0.05).POST at 2 hours, 6 hours, 12 hours and 24 hours was seen in 27% and 82%, 14% and 80%, 5% and 78% and 1% and 71% in group I and II respectively. The difference was significant (P< 0.05). Hoarseness of voice at 2 hours was 30% and 52%, at 6 hours was 22% and 43%, at 12 hours was 0 and 30% and at 24 hours was 0 and 5% in group I and II respectively. Post-operative cough in group I and group II at 2 hours was 38% and 74%, at 6 hours was 16% and 52%, at 12 hours was 12% and 48% and at 24 hours was 2% and 5% in group I and II respectively. The difference was significant (P< 0.05). **Conclusion:** Inhaled budesonide suspension significantly reduced the incidence and severity of POST in surgical patients following endotracheal intubation.
Key words: Budesonide, Cough, lipophilicity

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INTRODUCTION

Post-operative sore throat (POST) and hoarseness of voice are common complaints from patients receiving tracheal intubation. Post-operative sore throat (POST) has the incidence of 21%-71.8%. Although they are not major complications and are usually self-limiting, but they affect the satisfaction of patients to a significant extent.[1]

Budesonide is a corticosteroid with potent non-halogenated glucocorticoid and weak mineralocorticoid. It has the ability to be administered in the form of atomization inhalation. Its biggest advantage is lipophilicity.[2]It has the capacity to shorten the anesthesia recovery time and lessens post operative anaesthesia related complications in contrast to other systemic corticosteroids and it mayenhance the vascular tension of throat.[3] It causes decrease in capillary permeability andreduction of edema formation and inflammatory reactions of the local tissues.[4]

Drug delivery with metered dose inhaler would avoid the need of additional equipment such as nebulisers or atomisers, and avoiding the need of support from nursing professionals too. Other useful advantage is that this method is regarded as non- complex and more time-saving with high patient satisfactoriness.[5]The present study was conducted to assess role of inhaled budesonide suspensionon occurrence of POST in surgical patients following endotracheal intubation.

MATERIALS & METHODS

The present study comprised of 110 patients scheduled for short electivelaparoscopic surgeries under generalanaesthesia with endotracheal intubation. All patients gave their written consent.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 55 each. Group I received 200 µg budesonide inhalation suspension, using a metered dose inhaler, 10 min before intubation, and repeated 6 hours after extubation. In group II, no such intervention was performed. The incidence and severity of POST was recorded in all patients. The incidence of post-operative hoarseness and cough was also recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Groups	Group I	Group II
M:F	30:25	28:27
ASA I	32	30
ASA II	23	25

Table I shows that there were 30 males and 25 females in group I and 28 males and 27 females in group II.ASA statusI was seen in 30 males and 25 females in group I and II in 30males and 25 females.

Table II: Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Mallampatti score	1	32	36	0.05
	2	25	19	
Number of attempts at intubation	1	50	42	0.02
	2	5	13	
Rescue therapy for POST	Yes	6	20	0.01
	No	49	35	

Table II, graph I shows that Mallampatti score1was seen in 32 in group I and 36 in group II. Score 2 was seen in 25 in group I and 19 in group II. Number of attempts atintubation was 1in 50 and 42 and 2 seen among 5 and 13 in group I and II respectively. Rescue therapy for POST was seen among 6 in group I and 20 in group II. The difference was significant (P< 0.05).

Graph I: Comparison of parameters

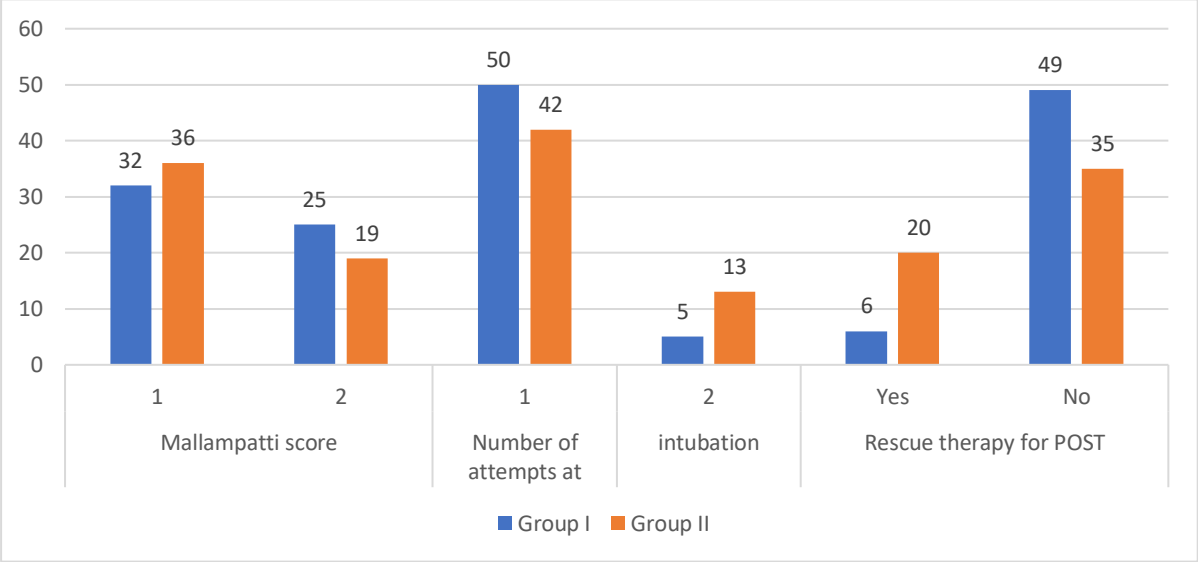

Table III: Assessment of POST

Duration (hours)	Group I	Group II	P value
2	27%	82%	0.05
6	14%	80%	0.03
12	5%	78%	0.01
24	1%	71%	0.01

Table III shows that POST at 2 hours, 6 hours, 12 hours and 24 hours was seen in 27% and 82%, 14% and 80%, 5% and 78% and 1% and 71% in group I and II respectively. The difference was significant (P< 0.05).

Table IV: Assessment of variables

Parameters	Duration (hours)	Group I	Group II	P value
Hoarseness of voice	2	30%	52%	0.05
	6	22%	43%	0.02
	12	0	30%	0.01
	24	0	5%	0.03
Post-operative cough	2	38%	74%	0.01
	6	16%	52%	0.02
	12	12%	48%	0.03
	24	2%	5%	0.05

Table IV shows that hoarseness of voice at 2 hours was 30% and 52%, at 6 hours was 22% and 43%, at 12 hours was 0 and 30% and at 24hours was 0 and 5% in group I and II respectively. Post-operative cough in group I and group II at 2 hours was 38% and 74%, at 6 hours was 16% and 52%, at 12 hours was 12% and 48% and at 24 hours was 2% and 5% in group I and II respectively. The difference was significant (P< 0.05).

DISCUSSION

Post-operative sore throat (POST) is leading cause of late patients discharge. It is one of the challenging tasks among anaesthetists to handle. In order to improve post-anaesthesia care quality, there is high need to induce prophylactic management of POST.[6]Numerous drugs such as ketamine, lidocaine and magnesium sulphate are commonly used and the method of administration of these agents are either gargling or by nebulisation.[7] These have tendency to minimizes symptoms. Corticosteroids are commonly used to inhibit and lessen post-operative throat complications among intubated patients.[8] Intravenous corticosteroids are not recommended as compared to inhaled corticosteroids due to side effects such as fluid retention, delayed wound healing and glucose intolerance.[9]The present study was conducted to assess role of inhaled budesonide suspensionon occurrence of POST in surgical patients following endotracheal intubation.

We found that there were 30 males and 25 females in group I and 28 males and 27 females in group II. ASA statusI was seen in 30 males and 25 females in group I and II in 30 males and 25 females. Kashefi P et al[10] compared nebulized budesonide and intravenous dexamethasone administration before extubation in prevention of post extubation complications in 90 patients. There was no significant difference between the two but nebulized budesonide was recommended for prevention of post-extubation complications in ICU patients regarding lower systemic absorption of budesonide.

We found that Mallampatti score1 was seen in 32 in group I and 36 in group II. Score 2 was seen in 25 in group I and 19 in group II. Number of attempts atintubation was 1 in 50 and 42 and 2 seen among 5 and 13 in group I and II respectively. Rescue therapy for POST was seen among 6 in group I and 20 in group II. Huang et al[11]in their study group A (20) patients received 200µg budesonide inhalation suspension and group B (20) patients did notreceive anything. Post-operative sore throat was assessed and was found that incidence of POST was significantly higher among subjects of group B in comparison to subjects of group A at different time intervals.

We found that POST at 2 hours, 6 hours, 12 hours and 24 hours was seen in 27% and 82%, 14% and 80%, 5% and 78% and 1% and 71% in group I and II respectively. Hoarseness of voice at 2 hours was 30% and 52%, at 6 hours was 22% and 43%, at 12 hours was 0 and 30% and at 24 hours was 0 and 5% in group I and II respectively. Post-operative cough in group I and group II at 2 hours was 38% and 74%, at 6 hours was 16% and 52%, at 12 hours was 12% and 48% and at 24 hours was 2% and 5% in group I and II respectively. Rajan et al[12] divided 46 patients undergoing laparoscopicsurgeries into 2 groups. Group A received 200 µgbudesonide inhalation suspension whereas no such intervention was performed in group B. Results showed that less patients in group A had post at various intervals of time as compared to group B. Group B had post-operative hoarseness of voice and cough at all-time. Severity and incidence of POST showed downward trends inboth groups over time, and by 24 hours no patient in Group A had sore throat.

CONCLUSION

Authors found that inhaled budesonide suspension significantly reduced the incidence and severity of POST in surgical patients following endotracheal intubation.

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