SUCRALFATE– A NOVEL INTERVENTION TO ALLEVIATE POST-TONSILLECTOMY ODYNOPHAGIA

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ABSTRACT

Objective: To evaluate the efficacy of sucralfate for relieving post-tonsillectomy odynophagia.
Study Design: Randomized clinical trial.
Place and Duration of study: This study was carried out at department of ENT, Combined Military Hospital Muzaffarabad for 9 month Feb 2017 to Oct 2017.
Material and Methods: Sixty patients of different age groups were selected randomly and were divided into two groups with equal gender distribution. Both groups underwent tonsillectomy using bipolar diathermy. Standard post-operative antibiotic and analgesic cover was provided. In addition, Group A was prescribed oral sucralfate syrup, post operatively, 3 times a day for 5 days. Patients were inquired about pain after 5 days. Patients in Group A showed better pain relief and the difference was statistically significant.
Results: The mean age of surgery in our study was 13.75 ± 8.12 years. The mean operative time was 16.12 ± 1.33 minutes. About 83.3% patients in group-A achieved satisfactory pain relief as compared to 43%patients in group-B. This difference was statistically significant with a *p* value of 0.001
Conclusion: Prescription of sucralfate in patients after tonsillectomy resulted in alleviation of post-operative odynophagia. Hence, we advocate the use of this cost-effective, readily available and safe drug after tonsillectomy.

Keywords: Post-tonsillectomy analgesia, Sucralfate after tonsillectomy, Tonsillectomy.

INTRODUCTION

Tonsillectomy is the most commonly performed surgery carried out by otolaryngologists worldwide[1]. It is performed amongst a wide range of age groups but however, a significant number of patients comprise of children[2]. Tonsillectomy has a number of indications amongst which, the most common are recurrent tonsillitis and sleep apnea[3]. Dating back to 1 BC when Celsus described the first tonsillectomy using his 'fingernail', numerous techniques have been described for performing this surgery e.g cold steel dissection, coblation and use of monopolar or bipolar diathermy[4-7]. The main unwanted outcome of tonsillectomy and an area of concern of otolaryngologist is post-operative pain[2]. Every otolaryngologist strives to achieve best pain control and for this, different analgesics have been tried over time to cater for this pain with varying outcomes[8].

An aluminum salt of sucrose sulphate, sucralfate has been used for treatment of duodenal ulcers. Due to its affinity for injured mucosa, it binds with polyvalent proteins and forms a protective barrier on the ulcer[9]. As a result, it would protect the ulcer from further injury and promotes recovery by its cryoprotective mechanism[10]. Numerous authors have shown good outcomes of using surcalfate in treatment of mucosal as well as epithelial wounds and ulcers[11,12]. This study was conducted at Combined Military Hospital Muzaffarabad with an aim to assess the efficacy of sucralfate in alleviating post tonsillectomy odynophagia. No such study had been conducted in our country regarding the use of sucralfate after tonsillectomy as far as we searched. We thus, conducted this study to find a better option for post-tonsillec-tomy analgesia.

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PATIENTS AND METHODS

We conducted a randomized clinical trial study at ENT department, Combined Military hospital Muzaffarabad from February 2017 till October 2017. After seeking permission from hospital ethical committee, 60 patients of both genders with age between 5 to 40 years who reported for recurrent tonsillitis or were diagnosed with sleep apnea were selected randomly by random number table. While patients having any coagulopathy were not included in the study. The patients were divided into two groups with equal gender distribution. Informed written consent was taken from the patients or the parents in case of a minor. All the patients underwent tonsillectomy under general anaesthesia using bipolar diathermy. All patients were prescribed post-operative antibiotic and syrup ibuprofen. All patients were started on liquid and semi- solid diet 6 hours after surgery. Group A was prescribed syrup sucralfate 5 ml (1gm/5 ml) thrice a day. Group B was not prescribed sucralfate. A visual analogue scale was developed to assess post-operative pain. The main area of concern was to alleviate post-operative pain to encourage oral intake. The visual analog scale consisted of the following grades.

- 0 : No Pain
- 1 : Pain but patient swallows semi-solid food easily
- 2 : Significant pain during swallowing semi-solid food
- 3 : Pain on swallowing liquids
- 4 : Pain at rest

On the 5th post-operative day, patients were assessed using visual analog score (VAS). The success of the intervention was attaining VAS of 0-2. This meant that the patient was able to complete a meal of semi-solid food. A VAS score of 3 meant that patient could not complete a semi-solid meal in once sitting and was also having pain during swallowing liquids which can lead to poor oral intake. All the data was maintained on separate proforma indicating the name, age, gender, indication and group of the patient. Data was analyzed using software SPSS-17. Mean and standard deviation were calculated for the quantitative variable. Categorical variables were presented by frequency and percentage. Chi-square test and independent sample t-test was applied to compare frequencies & distribution andthe level of significance was $p<0.05$.

Table-1: Descriptive analysis of age.

	Age in Years		Mean	Std. Deviation
	Minimum	Maximum		
Group–A	6	37	14.27	8.263
Group–B	5	34	13.23	8.084
Overall	5	37	13.75	8.121

Table–II: Gender pain relief crosstabulation (group–A).

		Pain relief		Total	*p*-value
		Pain relief	No significant Pain relief		
Gender	**Male**	12	3	15	*p*=0.624
	Female	13	2	15	
Total		25	5	30	

RESULTS

The age of the patients included in our study ranged from 5 years to 37 years with a mean of 13.75 ± 8.12 years. Gender was equally divided amongst the groups hence, both groups had 15 (50%) females and 15 (50%) males. Fifty-two patients (86.7%) were operated for recurrent tonsillitis while 8 patients (13.3%) were operated

for obstructive sleep apnea. These patients were divided into two treatment groups each comprising of 30 patients. Group-A was treated with oral sucralfate post-operatively while group-B was not prescribed sucralfate. No statistically significant difference was found between the two groups in terms of mean age (p=0.624) (table-I). The mean time taken to perform the surgery was 16.12 ± 1.33 minutes. Five days post-operatively, patients were assessed as per VAS. Overall, 63% patients (38 patients) showed adequate pain relief while 37% (22 patients) did not have adequate pain relief. No statistical significance was seen between gender and pain relief in both groups (p= 0.624 in group–A and p=0.713 in group-B) (table-II & III). Eighty-three percent patients in group-A achieved satisfactory pain relief as compared to 43% patients in group-B. A p-value was calculated to be 0.001 which was statistically significant (table-IV).

Table–III: Gender pain relief crosstabulation (group–B)

		Pain relief		Total	*p*-value
		Pain relief	No significant Pain relief		
Gender	**Male**	7	8	15	p=0.713
	Female	6	9	15	
Total		13	17	30	

Table–IV: Study group pain relief crosstabulation.

		Pain relief		Total	*p*-value
		Pain relief	No significant Pain relief		
Study Group	Group A (Sucralfate)	25	5	30	p=0.001
	Group B (Non-Sucralfate)	13	17	30	
Total		38	22	60	

DISCUSSION

Post-operative pain management is one of the prime concerns of surgeons as well as patients[13]. Since tonsillectomy is the most commonly performed surgical procedure by otolaryngologists, post-operative analgesia is also the main concern of otolaryngologists as it can affect oral in take and recovery of patient[14]. Over time, numerous interventions have been carried out to decrease post-tonsillectomy pain[15]. This included use of drugs like acetaminophen and ibuprofen as well as use of natural products like honey and ginger[2,16]. The present study was designed to assess use of sucralfate for post-tonsillectomy analgesia. Sixty patients were divided into two equal groups with equal gender distribution. In addition to oral ibuprofen, group–A was prescribed syrup sucralfate post-operatively while group–B was not prescribed sucralfate. The mean age of the patients was 13.75 ± 8.12 years. Significant diversity occurs in numerous studies regarding mean age of the patients due to the surgery being performed in patients of varying age groups. Ali *et al* noted a mean age of 9.4 ± 2.67 years17 while Din *et al* noted a mean age of 20 ± 0.24 years 18 for patients undergoing tonsillectomy. The mean time of surgery in our study was 16.12 ± 1.33 minutes. Ali et al found a mean time of 13.45 ± 3.15 minutes for tonsillectomy with bipolar diathermy[17]. Recently Vithayathil and Maruvala found bipolar diathermy as effective method of tonsillectomy and noted a time of 15.45 ± 3.9 minutes for tonsillectomy using bipolar diathermy[19].

Patients were evaluated 5 days post-operatively and VAS score was noted for both groups. Eighty three point three percent patients in group-A achieved satisfactory pain relief as compared to 43% patients in group-B. A *p*-value was calculated to be 0.001 which was statistically significant. This result of our study was supported by Siupsinskiene who also noted excellent analgesic effect of sucralfate after tonsillectomy. In addition, they also compared incidence of post-operative otalgia in patients using sucralfate and this was also statistically significant. Similar study was conducted by Miura *et al* and found statistical significant lesser pain in patients receiving post-operative sucralfate. However, they did not recommend sucralfate as the only post-operative analgesic[1]. Esteban and Soldado conducted a similar study in Spain and found that post-tonsillectomy pain was significantly reduced by use of sucralfate. We could not find a regional study for use of sucralfate for alleviating post-tonsillectomy pain and this is the first study of its kind to be carried out in Pakistan. Further studies with longer follow-up and a larger cohort will be able to help in determining efficacy of this intervention even more.

CONCLUSION

Prescription of sucralfate in patients after tonsillectomy resulted in alleviation of post-operative odynophagia. Hence, we advocate the use of this cost effective, readily available and safe durg after tonsillectomy.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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