

Original Research Article

Retrospective study of corticosteroid role in decreasing intraoperative bleeding during FESS surgery for chronic rhinosinusitis

Raghunath Shanbag, Santosh S. Garag*, J. S. Arunkumar

Department of ENT, SDM College of Medical Sciences and Hospital, Sattur, Dharwad, Karnataka, India

Received: 01 November 2018

Accepted: 15 November 2018

*Correspondence:

Dr. Santosh S. Garag,

E-mail: santu53@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The objective of the study was to assess the role of corticosteroid given preoperatively in decreasing intraoperative bleeding during functional endoscopic sinus surgery (FESS) for chronic rhinosinusitis.

Methods: This is a retrospective study conducted in a tertiary care hospital for patients undergoing FESS for chronic rhinosinusitis from January 2016 to December 2016. In this study 120 patients of FESS were enrolled. Their data was analyzed for preoperative corticosteroid given and intraoperative grade of bleeding.

Results: There were 62 patients out of 120 who received preoperative corticosteroid. Among these 41 had grade 0-1 bleeding and 21 had grade 2-5 bleeding. Similarly in non-corticosteroid group 30 had grade 0-1 bleeding and 28 had grade 2-5 bleeding. Based on these p values was calculated using fisher exact test which showed that to be non-significant.

Conclusions: Preoperative corticosteroids do not have control on intraoperative bleeding during FESS. They help in reducing the size of polyp and thus more effective in cases of CRSwNP.

Keywords: Corticosteroid, Bleeding, Rhinosinusitis, Preoperative, Intraoperative

INTRODUCTION

Chronic rhinosinusitis (CRS) has enormous impact on global population. It is one of the leading cause for hospital visit and financial burden on the society. It alters the quality of life and affects day to day activities.¹ It's a spectrum of disease which includes chronic bacterial sinusitis, chronic fungal sinusitis, chronic rhinosinusitis with nasal polyposis (CRSwNP). Patients having CRS will have symptoms of nasal obstruction, facial pain, discharge, hyposmia etc. for more than 12 weeks.¹ These patients will need functional endoscopic sinus surgery (FESS) to relieve them of their symptoms once the conservative treatment fails.² In majority of the cases of CRS, corticosteroids form the important part of the treatment.³ The treatment for CRS is not standardized as there is no definitive protocol.⁴

Corticosteroids have been extensively used in treatment of CRS. Because of their ability to decrease inflammation and improve symptoms of CRS.⁵ They are particularly more beneficial for CRSwNP.⁶ In which cases they have been used in different routes like oral, intranasal etc. They have been used preoperatively not only to decrease the size of polyp but also to decrease the intraoperative bleeding and to prevent postoperative chances recurrence.^{7,8} Their role in reducing intraoperative bleeding has not been evaluated by many in the past. This study aims to prove the role of corticosteroid in controlling intraoperative bleeding.

METHODS

This is a retrospective study conducted in a tertiary care hospital for patients undergoing FESS for chronic rhinosinusitis from January 2016 to December 2016. In

this study 120 patients of FESS were enrolled. Their data was analyzed for preoperative corticosteroid given and intraoperative grade of bleeding. All patients with diagnosis of CRS were taken for the study. There were 62 patients who had received corticosteroid either by intranasal or intraoral route 1 week prior to FESS surgery and remaining 58 patients did not receive any prior corticosteroid treatment. The electronic data of all 120 patients were analyzed for intraoperative grade of bleeding using Fisher exact chi square test. The p value was calculated. Fromme–Boezaart scale of surgical field grading was used.⁹ According to which if bleeding is of grade 0 to 1 the field is said to be excellent, grade 2 to 3 is good and if grade 4 to 5 is said to be poor.

RESULTS

We included 120 patients who underwent FESS for CRS in our study. In this we had 78 males and 42 females. There were 62 patients who had been administered corticosteroid preoperatively and 58 patients who did not receive corticosteroid. On analyzing the intraoperative notes, bleeding during surgery was graded. There were majority of patients in both groups who had excellent field during surgery. That is 42 patients of corticosteroid group had excellent field and 30 patients of without corticosteroid had excellent field during surgery. There were 16 patients in corticosteroid group and 19 patients in non corticosteroid group who had good field during surgery. In our study there were few patients in both the groups in whom the surgical field was so poor that frequent suctioning was needed. There were 4 patients of corticosteroid group and 9 patients of non corticosteroid group who had grade 4 to 5 bleeding (Table 1).

Table 1: Fromme-Boezaart scale of grades of bleeding.

Grade of bleeding	0	1	2	3	4	5
Corticosteroid group: 62 patients	23	19	12	4	3	1
Without corticosteroid: 58 patients	16	14	10	9	6	3

Table 2: Fischer exact test.

	Grade 0-1 bleeding	Grade 2-5 bleeding	Total (row)
Corticosteroid	41	21	62
Without corticosteroid	30	28	58
Total (columns)	71	49	120

Since majority of patients in both groups had grade 0 to 1 bleeding during FESS, their values were tabulated and compared to that of patients having grade 2 to 5 bleeding. Fisher exact test was applied to the variables to determine the p value (Table 2). The statistic value of which is

0.1377 which is not significant at p value of <0.05. This means that hypothesis is rejected. Our hypothesis that preoperative corticosteroid decreases intraoperative bleeding is discarded.

Table 3: Grades of bleeding in different subgroups of CRS

	Grade 0-1	Grade 2-3	Grade 4-5
CS group CRSwNP	12	15	03
CS group CRSsNP	21	10	01
NCS group CRSwNP	06	03	05
NCS group CRSsNP	34	07	03

In our study we observed that 30 patients of chronic rhinosinusitis with polyposis (CRSwNP) were from corticosteroid group and 14 patients of CRSwNP from non-corticosteroid group. There were 32 patients of chronic rhinosinusitis without nasal polyposis (CRSsNP) in corticosteroid group and 44 of CRSsNP in non-corticosteroid group (Table 3). This table also shows that grade 2 to 5 intraoperative bleeding is more in patients of CRSwNP than with CRSsNP.

DISCUSSION

The etiopathogenesis and definitive treatment of chronic rhinosinusitis has been enigma since ages. It is grouped broadly as chronic rhinosinusitis with nasal polyposis (CRSwNP) and chronic rhinosinusitis without nasal polyposis (CRSsNP). In CRSwNP there is inflammatory change of sinonasal mucosa with resultant overgrowth of mucosa.⁸ The etiopathogenesis of the two types of CRS is distinct and thus the treatment for both varies. In CRSwNP corticosteroid both intranasal and oral form the mainstay of treatment.^{10,11} The role of corticosteroid in CRSsNP is still controversial.^{12,13} FESS is reserved for patients of all chronic rhinosinusitis who fail to respond to medical treatment.³

In FESS all the diseased and prolapsed mucosa is removed. The ventilation of sinuses is reestablished by opening and widening the blocked Ostia. Presence of bloodless field is important during FESS, to completely eliminate the diseased mucosa and decrease the chances of complications.¹⁴ Many surgeons have tried several drugs preoperatively to reduce intraoperative bleeding. In this regard corticosteroids have been tried preoperatively to decrease intraoperative bleeding and improve surgical field.⁷

In our study we analyzed the importance of preoperative corticosteroid in decreasing intraoperative bleeding during FESS for CRS. The intraoperative bleeding was graded based on Fromme–Boezaart scale. Majority of patients had excellent surgical field irrespective of

corticosteroid treatment preoperatively (Table 2). Intraoperative bleeding was more (grade 2-5) in patients having CRSwNP than in patients of CRSsNP. Majority of these patients of CRSwNP had received corticosteroids i.e. 30 out of 44 patients. This implies that corticosteroid does not have any role in decreasing the intraoperative bleeding during FESS. Although corticosteroids decrease the size of polyps and reduced the inflammation.¹¹ Pundir et al had did meta-analysis on corticosteroid role in FESS in which they concluded that their role in reducing bleeding and improving surgical field is significant.⁷ Sieskiewicz et al in a similar study concluded that preoperative usage of steroid decreased the intraoperative bleeding marginally but improved the surgical field significantly.¹⁵ According to them antiedema effect of steroids improved the surgical field without decreasing the bleeding. The role of corticosteroid in treatment of CRSsNP is controversial. In our study there was no statistical difference in grade of bleeding in patients of CRSsNP who had received preoperative steroids. Thus we conclude that preoperative corticosteroid does not have any role in decreasing intraoperative bleeding during FESS although it reduces the size of polyps in CRSwNP significantly. This reduction in size of polyp helps in better visualization of surgical field. So they can be given preoperatively in patients of CRSwNP, with intention of decreasing the size of polyp.

CONCLUSION

Thus we conclude from our study that preoperative corticosteroid does not have any role in decreasing intraoperative bleeding during FESS. They can be given in patients of CRSwNP to decrease the size of polyps preoperatively.

ACKNOWLEDGEMENTS

We are thankful to Dr. Ashok Naik, Head of ENT department at SDM College of medical sciences for his constant encouragement and all-round support. We would also like to thank our hospital management for providing us with necessary infrastructure and technical support for carrying out this research work.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

- Rudmik L, Soler ZM. Medical Therapies for Adult Chronic Sinusitis: A Systematic Review. JAMA. 2015;314(9):926-39.
- Bhattacharyya N. Symptom outcomes after endoscopic sinus surgery for chronic rhinosinusitis. Arch Otolaryngol Head Neck Surg. 2004;130(3):329-33.
- Guilemany JM, Alobid I, MULLOL J. Controversies in the treatment of chronic rhinosinusitis. Expert Rev Respir Med. 2010;4(4):463-77.
- Rimmer J, Fokkens W, Chong LY, Hopkins C. Surgical versus medical interventions for chronic rhinosinusitis with nasal polyps. Cochrane Database Syst Rev. 2014;(12):CD006991.
- Sang Hag Lee SH. Mechanisms of Glucocorticoid Action in Chronic Rhinosinusitis. Allergy Asthma Immunol Res. 2015;7(6):534-7.
- Fandiño M, Macdonald KI, Lee J, Witterick IJ. The use of postoperative topical corticosteroids in chronic rhinosinusitis with nasal polyps: a systematic review and meta-analysis. Am J Rhinol Allergy. 2013;27(5):146-57.
- Pundir V, Pundir J, Lancaster GA, Baer S, Kirkland P, Cornet M, et al. Role of corticosteroids in Functional Endoscopic Sinus Surgery - a systematic review and meta-analysis. Rhinology. 2016;54(1):3-19.
- Kalish L, Snidvongs K, Sivasubramaniam R, Cope D, Harvey RJ Topical steroids for nasal polyps. Cochrane Database Syst Rev. 2012;12:CD006549.
- Boezaart AP, van der Merwe J, Coetzee A. Comparison of sodium nitroprusside- and esmolol-induced controlled hypotension for functional endoscopic sinus surgery. Can J Anaesth. 1995;42(5):373-6.
- Head K, Chong LY, Hopkins C, Philpott C, Schilder AG, Burton MJ. Short-course oral steroids as an adjunct therapy for chronic rhinosinusitis. Cochrane Database Syst Rev. 2016;4:CD011992.
- Mullol J, Obando A, Pujols L, Alobid I. Corticosteroid treatment in chronic rhinosinusitis: the possibilities and the limits. Immunol Allergy Clin North Am. 2009;29(4):657-68.
- Snidvongs K, Kalish L, Sacks R, Craig JC, Harvey RJ. Topical steroid for chronic rhinosinusitis without polyps. Cochrane Database Syst Rev. 2011;8:CD009274.
- Wei CC, Adappa ND, Cohen NA. Use of topical nasal therapies in the management of chronic rhinosinusitis. Laryngoscope. 2013;123(10):2347-59.
- Baradaranfar MH, Aghaei MA, Behniafard N, Nabi-Meibodi M, Atighechi S, Dadgarnia MH, et al. Effect of Topical Furosemide on Intraoperative Bleeding During Functional Endoscopic Sinus Surgery. J Craniofac Surg. 2016;27(4):970-2.
- Sieskiewicz A, Olszewska E, Rogowski M, Grycz E. Preoperative corticosteroid oral therapy and intraoperative bleeding during functional endoscopic sinus surgery in patients with severe nasal polyposis: a preliminary investigation. Ann Otol Rhinol Laryngol. 2006;115(7):490-4.

Cite this article as: Shanbag R, Garag SS, Arunkumar JS. Retrospective study of corticosteroid role in decreasing intraoperative bleeding during FESS surgery for chronic rhinosinusitis. Int J Otorhinolaryngol Head Neck Surg 2019;5:88-90.