

USE OF OXYMETAZOLINE IN THE MANAGEMENT OF EPISTAXIS

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The purpose of this study was to determine if use of an intranasal vasoconstrictor (oxymetazoline) could be used to effectively treat epistaxis, avoiding nasal packing. The charts of 60 patients who presented to the emergency room with the diagnosis of epistaxis and who required medical management were reviewed. Sixty-five percent of these patients were successfully managed with oxymetazoline as their sole therapy. An additional 18% were managed successfully with silver nitrate cautery in combination with oxymetazoline. In only 17% of patients was it necessary to use nasal packing as treatment for epistaxis after an initial attempt with oxymetazoline alone or in combination with silver nitrate failed. These data suggest that pharmacologic management may be adequate in the majority of patients with epistaxis, thus avoiding the need for nasal packing with its associated complications.

KEY WORDS — epistaxis, oxymetazoline.

INTRODUCTION

Epistaxis is a common reason for otolaryngology consultation in the emergency room. It is reported that 60% of the general population will experience at least one episode of epistaxis, with 6% seeking medical attention.¹ The mainstay of otolaryngological management of epistaxis often relies on some form of nasal packing. Although nasal packing, either anterior or posterior, is successful in the majority of cases, packing the nose is uncomfortable for the patient. In addition to the discomfort, most patients experience nasal or sinus obstruction, eustachian tube dysfunction, and arterial blood gas derangements.² Hypoxia, cardiac dysrhythmia, aspiration, and sepsis are life-threatening complications associated with nasal packing.² Nasal packing also increases costs to the health care system by increasing patient hospitalization, antibiotic usage, and utilization of physician time.

There are multiple alternative treatments described in current literature to avoid nasal packing. Nonsurgical alternatives include cryotherapy,³ use of local cautery with silver nitrate or electrocautery,⁴ and greater palatine canal injections.⁵ Surgical options include ligation of maxillary and ethmoidal arteries,⁶ percutaneous arterial embolization,⁷ and endoscope-guided control of bleeding.^{8,9} The ideal treatment for epistaxis would control hemorrhage, minimize patient hospitalization and costs, and minimize treatment morbidity.

Oxymetazoline hydrochloride (Afrin) is a topical vasoconstrictor that is an imidazole derivative and a widely used nasal decongestant. It reduces nasal mucosal blood flow by constricting the resistance vessels.¹⁰ This effect gradually declines, with the nasal mucosal blood flow still not completely re-

turned to initial value at 8 hours.¹¹ Topical cocaine has long been used to control epistaxis.¹² Oxymetazoline acts similarly; however, unlike cocaine, it is inexpensive, it is readily available, and treatment can be continued on an outpatient basis for a limited time interval. Its use in the treatment of epistaxis is more comfortable for the patient and costs less, both monetarily and with regard to physician time, than nasal packing.

MATERIALS AND METHODS

The records of all patients evaluated for epistaxis in the University Hospital Emergency Center, the University Health Center Downtown Walk-in Clinic, and the University Health Center Downtown Otolaryngology-Head and Neck Surgery Clinic from January 1, 1992, to December 31, 1993, were reviewed. One hundred eighty-seven charts were reviewed. The pediatric patients, in general, did not require any form of intervention, and the group was therefore excluded (51). An additional 76 patients were excluded because at the time of initial evaluation no active bleeding was found, or no therapy instituted. Sixty patients were included in the study. Data regarding patient age, sex, nonsteroidal anti-inflammatory drug (including aspirin) or warfarin use, and associated medical conditions such as hypertension, diabetes, coronary artery disease, tobacco use, ethanol use, and preexisting liver disease were collected. As well, the method of treatment, need for hospitalization, length of hospitalization, and number of transfusions were recorded.

Various therapeutic modalities were used to treat epistaxis. As an initial method of therapy, oxymetazoline, two generous sprays in each nostril, was used in all patients. In some patients in whom a bleeding

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TABLE 1. TREATMENTS

Treatment	Patients (N = 60)		Admissions
	No.	%	
Oxymetazoline	39	65	0
Silver nitrate cautery and oxymetazoline	11	18	3*
Nasal packing	10	17	3

*All for associated medical conditions.

site could be identified, silver nitrate cautery was used, sometimes prior to use of oxymetazoline, sometimes after. Any patient who failed oxymetazoline (persistent bleeding after 30 minutes or brisk bleeding that was not significantly decreased after 5 minutes) was treated with an anterior pack with or without a posterior nasal pack. Any patient who failed posterior packing was taken to the operating room for internal maxillary artery and ethmoidal artery ligation. The patients receiving oxymetazoline were treated for 3 to 5 days, at a dosage of two sprays each nostril three times a day.

RESULTS

Of the 60 patients treated, 39 (65%) were treated with oxymetazoline alone (Table 1). Another 11 (18%) patients were treated with the combination of oxymetazoline and silver nitrate cautery. Only 10 (17%) patients required any type of nasal packing; 5% required posterior packs. A total of 6 (10%) were admitted; however, half of these were medical admissions for diagnoses other than epistaxis (coagulopathy in 2 and pancytopenia in 1). The 3 patients admitted for epistaxis all had posterior packs, were hospitalized an average of 6 days, and did not require transfusions. The average length of stay for the 3 patients with medical admissions was 8 days. Three patients did require transfusion (average of 4 units); however,

these patients were those admitted with concomitant medical conditions necessitating transfusion. Of those patients treated with oxymetazoline alone and discharged home, 1 returned with recurrent epistaxis, and was treated with silver nitrate cautery. No patients discharged home after combination treatment of oxymetazoline and silver nitrate cautery failed. No patients in the group studied underwent surgical procedures to control epistaxis. Chi-square analyses were performed, and there was no significant difference in risk factors, associated medical conditions, or age among the groups (Table 2). There was a male preponderance in all groups; however, this was not statistically significant.

DISCUSSION

Epistaxis is one of the most common emergencies that an otolaryngologist is called upon to treat. The mainstay of initial therapy, by review of the literature, seems to be silver nitrate cautery and nasal packing.¹³⁻¹⁶ Gates¹⁴ advocates the use of silver nitrate cautery in all patients in whom a site can be identified, after gently suctioning away clots, and providing vasoconstriction with a cocaine-adrenaline mixture, even if there is no active bleeding. Many articles have addressed the inpatient management of epistaxis, but few have addressed the method by which patients are treated on an outpatient basis.

This study demonstrated that the use of oxymetazoline alone was sufficient to control 65% of cases of epistaxis that presented to the emergency center and clinics. Used in conjunction with silver nitrate cautery, nasal packing was avoided in all but 17% of those actively bleeding at the time of initial evaluation.

The cost of oxymetazoline is approximately \$5.00 for 5 mL, whereas the procedure charge for anterior

TABLE 2. FACTORS CONTRIBUTING TO EPISTAXIS

	Oxymetazoline Alone		Silver Nitrate Cautery and Oxymetazoline		Nasal Packing		p
	No. of Pts	%	No. of Pts	%	No. of Pts	%	
Gender							
Male	28	72	10	91	7	70	NS
Female	11	28	1	9	3	30	NS
Risk factors							
NSAIDs, Coumadin	1	3	1	9	2	20	.13
Hypertension	13	33	3	27	2	20	NS
Liver disease	0	0	1	9	1	10	NS
Diabetes mellitus	2	5	1	9	1	10	NS
Alcohol abuse	7	18	1	9	2	20	NS
Tobacco use	1	3	0	0	0	0	NS

Mean ages for three treatment groups were as follows (no significant difference [NS]): oxymetazoline alone, 39 years; cautery and oxymetazoline, 41 years; packing, 45 years.

NSAIDs — nonsteroidal anti-inflammatory drugs.

nasal packing in our institution is \$273.00. Using oxymetazoline also eliminates the need for prophylactic antibiotics while nasal packing is in place. Costs of hospitalization are avoided as well. Although it has never been studied, it seems obvious that a patient without nasal packing will be more comfortable than a patient with nasal packing.

CONCLUSIONS

1. Oxymetazoline should be used as a first-line

therapy to control epistaxis in the emergency center or clinic setting.

2. If epistaxis is controlled with oxymetazoline alone, discharge home with a thrice-daily regimen of oxymetazoline will result in only a 3% rate of recurrent bleeds.
3. In a majority of patients who present with active bleeding, nasal packing can be avoided with the use of oxymetazoline alone or in conjunction with silver nitrate cautery.

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