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Original Research Article

Role of Neomycin Cream in Management Patients with Epistaxis

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Abstract

Nosebleed, also known as epistaxis, is a common problem that occurs at some point in at least 60% of people in the United States. While the majority of nosebleeds are limited in severity and duration, about 6% of people who experience nosebleeds will seek medical attention. For the purposes of this guideline, we define the target patient with a nosebleed as a patient with bleeding from the nostril, nasal cavity, or nasopharynx that is sufficient to warrant medical advice or care. This includes bleeding that is severe, persistent, and/or recurrent, as well as bleeding that impacts a patient's quality of life. Interventions for nosebleeds range from self-treatment and home remedies to more intensive procedural interventions in medical offices, emergency departments, hospitals, and operating rooms. Epistaxis has been estimated to account for 0.5% of all emergency department visits and up to one-third of all otolaryngology-related emergency department encounters. Inpatient hospitalization for aggressive treatment of severe nosebleeds has been reported in 0.2% of patients with nose bleeds.

Keywords: Epistaxis, Neomycin.

Introduction

Epistaxis can be defined as bleeding from the nose which impacts the quality of life (QoL). Epistaxis (nosebleed) is one of the most common emergencies that present to the emergency department or the primary care clinic. Epistaxis can be divided into 2 types: anterior (more common), and posterior (less common). The source of 90% of anterior nosebleeds is located within Kiesselbach's plexus (also known as Little's area) on the anterior nasalseptum. The nasal cavity is supplied by five vessels, each of which has terminal branches:

First, the anterior ethmoidal artery.
Second, the posterior ethmoidal artery.
Third, Sphenopalatine artery.
Fourth, The greater palatine artery.
Fifth, Superior labial artery.

The anterior nasal septum, which includes Kiesselbach's plexus, is where these five vessels have their watershed region. Over the septum in this area the mucosa is especially thin, making this the site of the majority of epistaxis. This is present at the entrance to the nasal cavity and so is exposed to extremes of cold and heat, low and high moisture, and can be easily traumatized. The so-called "posterior" epistaxis is more seldom caused by bleeding from arteries in the superior or posterior nasal cavities. Patients on anticoagulants, those with underlying blood dyscrasia or vascular abnormalities, and hypertensive patients are more likely to experienced. [27-29]

Materials and Methodology

Study Center

Department of Otorhinolaryngology, Shyam Shah Medical College and associated Sanjay Gandhi and Gandhi Memorial Hospitals, Rewa, Madhya Pradesh

Study Design: This study design was Prospective and randomized.

Study Population: Patient > 5 yrs and < 60 yrs.

Study Duration: January2021 to December2021 (12 Months).

Sample Size: Approximately 50 patients in each group, so we planned to have 100 patientsas an adequate number of samples in the study.

Inclusion Criteria

Patients coming with complaint of nasal bleed in the emergency department. Patients who are admitted with the initial diagnosis of epistaxis in ENT ward. Patient willing to participate in the study.
Patient > 5 yrs and< 60 yrs

Exclusion Criteria

Patients with any comorbid conditions and immunodeficiency conditions. The patients who failed to show up for the follow each patient was subjected to

complete general physical and systemic examination and detailed history was taken. Basic demographic characteristics such as age, height, sex, weight BMI and Blood pressure were noted. The patient was explained about the procedure and educated about the VAS score and benefit of nasal packing

S. No. 1-50: Nasal packing with Neomycin
51-100: Nasal packing with BIPP (Bismuth iodo form paraffin paste)

The patients were followed up 48 hours, 7th day and 1month after procedure.

Assessment of bleeding was identified as:

0 – Absence (no blood present on pledget or as said by patient on follow up)
1 – Presence (blood present on pledget or as said by patient on follow up)

VAS (Visual Analogue Scale) Score: Change in the direction of VAS score was assessed on a scale of zero (no pain) to ten (the worst imaginable pain) during/before and after pack removal.

Results

Age: A total of 100 patients were included in our study both control and cases in which 9% were between 5-10 years of age, 35% between 11-20 years of age, 23% were between 21-30 years of age, 5% between 31-40 years of age, 10% between 41-50 years of age and 18% were between 51-60 years of age

Sex: In our study out of 100 patients, In Case, there were 32% Females and 68% Males. In Control, there were 42% females and 58% males.

Blood Pressure

In our study, In Case there were 28% normal, 44% Pre-Hypertensive, 20% Stage 1 Hypertensive, and 8% Stage 2 Hypertensive. In Control there were 34% normal, 40% Pre-Hypertensive, 14% Stage 1 Hypertensive, and 12 % Stage 2 Hypertensive, In our study, Mean Systolic BP in cases and control was 124.8 and 127.4mmHg respectively, and mean Diastolic BP in cases and control was 76.4 and 78.2mm Hg respectively.

Bleeding Assessment

A) **After 48 hours**

In our study, after 48 hrs, in case bleeding was absent in92% and present in 8% patients. In Control bleeding was present absent in 76% and present in 24% patients.

B) **After 1 week**

In our study, after 1 week, in case bleeding was absent in 96% and present in 4% patients. In Control bleeding was present absent in 76% and present in 24% patients.

C) **After 30 days**

In our study, after 30 days, in case bleeding was absent in 98% and present in 2% patients. In Control bleeding was present absent in 88% and present in 12% patients.

Coagulation profile assessment

In our study

a) Mean PT in case was 12.72sec and in control was 12.94sec.
b) Mean aPTT in case was 34.04sec and in control was 35sec.
c) Mean INR in case was 1.07 and in control was 1.12.

VAS assessment: In our study mean VAS in case was 3.88 and in control was 4.62 during packing and 1.78 and 2.34 respectively after pack removal.

Table 1: Blood pressure Mean and Standard deviation of the patients (n = 100)

Variable	Treatment group	N	Mean	SD	SE	t-test	P-value
Systolic BP	Nasal Packing with Neomycin	50	124.8	20.922	2.959		
	Nasal Packing with BIPP	50	127.4	22.021	3.114	0.605	0.546
Diastolic BP	Nasal Packing with Neomycin	50	76.4	8.514	1.204		
	Nasal Packing with BIPP	50	78.2	9.409	1.331	1.003	0.318

In our study, Mean Systolic BP in cases and control was 124.8 and 127.4mm Hg respectively, and mean Diastolic BP in cases and control was 76.4 and 78.2mm Hg respectively.

Table 2: Coagulation profile of patients

Variable	Treatment Group	N	Mean	SD	SE	t-test	P- value
PT	Nasal Packing with Neomycin	50	12.72	1.679	0.237		
	Nasal Packing with BIPP	50	12.94	1.91	0.27	0.612	0.542
aPTT	Nasal Packing with Neomycin	50	34.04	6.366	0.9		
	Nasal Packing with BIPP	50	35	6.612	0.935	0.74	0.461
INR	Nasal Packing with Neomycin	50	1.07	0.29201	0.0413		
	Nasal Packing with BIPP	50	1.12	0.32293	0.04567	0.812	0.419

In our study

a) Mean PT in case was 12.72sec and in control was 12.94sec.
b) Mean aPTT in case was 34.04sec and in control was 35sec.
c) Mean INR in case was 1.07 and in control was 1.12.

Discussion

1. Age and Gender Wise Distribution

A total of 100 patients were included in our study both control and cases in which 9% were between 5-10 years of age, 35% between 11-20 years of age, 23% were between 21-30 years of age, 5% between 31-40 years of age, 10% between 41-50 years of age and 18% were between 51-60 years of age.
In our study out of 100 patients, In Case, there were 32% Females and 68% Males. In Control, there were 42% females and 58% males. Mean age of case was 32.92 years and of control was 25.52. In our study, there were 63 Male and 37 Female (M: F = 1.70:1)

Reza zahed et al mean age was 50yrs and 52% were males and 48% were females [9]

Sirsak dutta et al in 2012 Among the 240 patients, 70% (168) were male and 30% (72) were female (M: F = 2.33:1). [10]

Tran QK et al in 2021 took 100 patients with mean age 35, 47 were males and 53 were females also had similar results. [11]

Po uheh chen et al in 2014 out of 100 patients, male was 42% and female were 58% with mean age 38. [12]

2. Blood Pressure Parameters

In our study, Mean Systolic and Diastolic BP in Case was 124.8- and 76.4-mm hg, and in Control was 127.4 and 78.2 respectively.

Meera bista in 2017 concluded that when compared to results from prior days, the day of bilateral nasal packing resulted in a considerable increase in both systolic and diastolic blood pressure. (P value <0.001). Pre-operative mean blood pressure was seen to be 116/77mm of Hg, on the day of nasal packing it was 124/83mm of Hg, on the day of nasal pack removal it came down to 115/76mm of Hg and on discharge it was seen to be 112/75mm of Hg. [13] Mustafa deniz Yilmaz in 2004 suggested No significant difference was seen when the preoperative (daytime and nocturnal) mean BP (Systolic 120.8mm Hg and Diastolic 63.2mm Hg) levels of the patients measured in Nasal Packing. [14]

Hayoung baun et al in 2021 shown that There was no meaningful difference in the risk for recurrent epistaxis between the hypertension and non-hypertension groups (incidence rate ratio, 1.23; 95% CI, 0.77- 2.00). [15]

3. Vas Assessment During Packing and After Pack Removal

In our study mean VAS in case was 3.88 and in control was 4.62 during packing and 1.78 and 2.34 respectively after pack removal. In addition to high sensitivity and reliability, VAS is easy and simple to use Radhika hiren Shukla et al in 2019 suggested that the VAS score showed a consistent improvement from preoperative assessment score 74.8 to 51.0 at 1 month. [16]

Hyo young kim in 2012 showed that the experimental group had considerably lower VAS values for nasal blockage, dry mouth, sleep disturbance, headache, and swallowing than the control group in the survey of patient discomfort. [17]

Sanem Okşan ERKAN in 2018 demonstrated that the Neomycin packing resulted in lower VAS score. [18]

4. Bleeding Assessment

In our study, after 48 hrs Bleeding stopped after pack removal in 46 (92%) of 50 patients in the Case, compared with 38 (76%) of 50 patients in the Control (percent difference = 16%; 95% CI = 26% to 57%; p = 0.029, Chi square = 4.76).

After 1 week Bleeding stopped after pack removal in 48 (96%) of 50 patients in the Case, compared with 38 (76%) of 50 patients in the Control (percent difference = 20%; 95% CI = 26% to 57%; p = 0.004, Chi square = 8.31).

After 30 days Bleeding stopped after pack removal in 49 (98%) of 50 patients in the Case, compared with 44 (88%) of 50 patients in the Control (percent difference = 10%; 95% CI = 26% to 57%; p = 0.05, Chi square = 3.84).

Rebleeding at 48 hours was documented in 4 (8%) of patients in the Case and 12 (24%) of 50 patients in the Control group (p = 0.029).

Rebleeding at 1 week was documented in 2 (4%) of 50 patients in the Case group and 12 (24%) of 50 patients in the Control group (percent difference = –20%; 95% CI = –28% to –4%; p = 0.004).

Rebleeding at 30 days was documented in 1 (2%) of 50 patients in the Case group and 6 (12%) of 50 patients in the Control group (percent difference = –10%; 95% CI = –28% to –4%; p = 0.05).

Po-uheh chen in 2014 concluded thata simple application of antibiotic ointment to nasal packing could greatly reduce the bacterial load and subsequently epistaxis. [19] Tran QK et al in 2021 suggested that when nasal compression is unable to induce haemostasis or when the bleeding source

cannot be located, nasal packing is an effective, risk-free therapy alternative. [20]

Adèle Sakr in 2018 in their study showed that It has been determined that nasal Staphylococcus aureus is the main risk factor for recurrent epistaxis in up to 30% of the human population. [21]

Hasan Emre Koçak et al in 2021 concluded that Local antiseptic ointment, local decongestant ointment, and chemical cauterization provide similar results for the treatment of epistaxis. In the second week following treatment, there was no statistically significant difference between combination therapies and single treatments, but in the first month, combined treatments were much more successful. [22]

Kubba et al. compared untreated patients and those treated with antiseptic cream in their prospective randomized trial including 103 patients and reported a better result in the treatment group. [23]

5. Coagulation Profile Assessment

In our study

a) Mean PT in case was 12.72 sec and in control was 12.94 sec.
b) Mean aPTT in case was 34.04sec and in control was 35sec.
c) Mean INR in case was 1.07 and in control was 1.12.

R Parajuli et al in 2013-14 concluded that routine coagulation screening in all the patients presenting with epistaxis in ED/ OPD has no role. [24]

M S Awan et al in 2008 concluded that all patients with epistaxis should not undergo routine coagulation testing because it adds to treatment expenses and ER wait times. Coagulation screening is not warranted in cases with thrombocytopenia or other comorbid diseases like hypertension. However, patients who are taking anticoagulants and those with proven coagulopathy or chronic liver disease can benefit from coagulation testing. [25]

G L Jones et al in 2003 suggest that although coagulation screens will not predict the potential management problems associated with the epistaxis patient, they remain an important part of the clinical investigation. An epistaxis may be the only indication of an underlying coagulation disorder. The diagnosis of such a disorder following an epistaxis may lead to the treatment of an otherwise unknown condition and prevention of more serious sequelae. [26]

Conclusion

It can be concluded from our study that coagulation screening should be carried out only if firm indications (If patient is on anticoagulant therapy or any history of cardiovascular disease) are found in the history and clinical examination of patients with epistaxis.

Acute airway obstruction brought on by bilateral nasal packing can significantly increase both systolic and diastolic blood pressure. Thus, we draw the conclusion that when performing bilateral nasal packing in healthy individuals, extreme caution must be exercised, it must be done even more so in high-risk patients.

From the ongoing observations and discussion, it can be concluded that Packing with neomycin shown beneficial effects in terms of mucosal healing, and faster bleeding cessation, lesser rebleeding at 48hrs, 1 week and after 30days,thanBIPP**.**So, we conclude that the among all parameter that Nasal packing with Neomycin has shown better result than packing with conventional BIPP.

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