

Original Research Article

Seasonal variance in the incidence rate of epistaxis

M. Ahsanuzzaman Khan^{1*}, M. Abdul Wahab², M. Monsur Alam³, Taniza Tabassum⁴

¹Department of Otolaryngology and Head-Neck Surgery, Combined Military Hospital, Dhaka, Bangladesh

²Department of Biochemistry, Armed Forces Medical College, Dhaka, Bangladesh

³Department of Otolaryngology and Head-Neck Surgery, Armed Forces Medical College, Dhaka, Bangladesh

⁴Instructor of Forensic Medicine, Armed Forces Medical College, Dhaka, Bangladesh

Received: 13 August 2023

Accepted: 28 August 2023

*Correspondence:

Dr. M. Ahsanuzzaman Khan,

E-mail: jamanahsan166@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: Epistaxis, commonly known as a nosebleed, is a medical term that refers to the occurrence of bleeding from the nose. This study aimed to assess the seasonal variance in the incidence rate of epistaxis.

Methods: This was a cross-sectional observational study that was conducted in the department of otolaryngology and head-neck surgery (ENT) at Combined Military hospital (CMH), Chattogram from January 2013 to December 2016 and in CMH, Dhaka from January 2017 to July 2019. In total 165 patients who reported complaints of nose bleeding to the ENT Outpatient Department or Emergency unit of the aforementioned hospitals were enrolled in this study as the study subjects. All the patients were diagnosed based on, clinical examination, history, and radiological and laboratory investigations. All data were processed, analyzed and disseminated by using MS office.

Results: The mean age of the participants was 34.44 years; the majority (21.8%) were from the age group of 11-20 years. Bilateral nasal bleeding was in 108 (65.5%) cases, 125 (75.8%) patients had the first episode of bleeding and 117 (70.9%) patients had anterior epistaxis. In analyzing the monthly wise incidences rate of epistaxis among participants we observed that, in February (11%), March (10%), June (10%), July (13%) and December (15%) the incidence rates were higher than in other months. In evaluating the seasonal variation of epistaxis among our participants we observed that the highest incidences occurred in the winter season which was 32% followed by 30% in the summer season.

Conclusions: Younger male individuals are mainly prone to epistaxis. The frequency of the incidence of epistaxis during the winter and summer seasons is higher than in other seasons.

Keywords: Seasonal, Variance, Incidence, Epistaxis, Idiopathic, Winter, Summer

INTRODUCTION

Epistaxis is acknowledged as a prevalent emergency in the field of ear, nose, and throat (ENT) globally. It poses a significant challenge in areas with limited resources for providing adequate care to affected patients. It is approximated that epistaxis occurs in about 60% of individuals worldwide at some point in their lives, with around 6% of these cases seeking medical treatment.¹ Epistaxis is seldom life-threatening, yet it can evoke notable apprehension, particularly among parents of

young kids.² Due to their abundant vascular supply and heightened frequency of upper respiratory tract infections, children might exhibit a higher susceptibility to nosebleeds. The typical course of this issue involves occasional, recurring, and generally minor episodes of nonspontaneous nosebleeds, which can evoke concern.³ Epistaxis is affecting up to 56% aged between 6 and 10 years and around 9% of the teenaged population.⁴ Parents and medical practitioners find severe and recurrent cases of epistaxis to be significant challenges. The causes of recurring epistaxis differ in terms of frequency and underlying factors between adults and children.⁵ The

causes of epistaxis can be categorized as either local or systemic, although this distinction can be challenging, and around 80-90% of cases are termed "Idiopathic Epistaxis." The underlying factors for epistaxis exhibit variations based on age and anatomical location. Among younger individuals, traumatic epistaxis, commonly resulting from digital trauma, facial injuries, or nasal cavity foreign bodies, is more prevalent. In children, non-traumatic epistaxis is uncommon and can be linked to systemic ailments and environmental factors like temperature, humidity, and altitude. Epistaxis observed in children under 10 years of age is generally mild and originates from the anterior part of the nose.⁶ Numerous studies have explored the connection between the occurrence of epistaxis and variables like season, temperature, and humidity. The majority of these studies have identified a correlation between the frequency of cases and at least one of the meteorological factors mentioned above, but some other studies have shown no relationship.⁷⁻¹¹ The objective of this current study was to assess the seasonal variance in the incidence rate of epistaxis.

METHODS

This cross-sectional observational study was conducted in the department of otolaryngology and head-neck surgery (ENT) at Combined Military hospital (CMH), Chattogram from January 2013 to December 2016 and in CMH, Dhaka from January 2017 to July 2019. In total 165 patients who reported complaints of nose bleeding to the ENT outpatient department or emergency unit of the aforementioned hospitals were enrolled in this study as the study subjects. A convenient purposive sampling technique was used in sample selection. Properly written consent was taken from all the participants before data collection. Proper ethical clearance was obtained before starting the research work. All the patients were diagnosed based on, clinical examination, history as well as radiological and laboratory investigations. All data were processed, analyzed and disseminated by using MS office.

RESULT

In this study, 70 participants were males whereas the rest 30% were females. The mean age of the participants was 34.44 years. The majority 36 (21.8%) of the cases were from the age group of 11-20 years followed by 33 (20%) were from the 21-30 years age group. Among our total participants, the highest incidence of epistaxis was from trauma (40%) followed by hypertension (15%) and idiopathic (14%). Among our total participants, bilateral nasal bleeding was in 108 (65.5%) cases, 125 (75.8%) patients had the first episode of bleeding and 117 (70.9%) patients had anterior epistaxis. In analyzing the monthly wise incidences rate of epistaxis among participants we observed that, in February (11%), March (10%), June (10%), July (13%) and December (15%) the incidence rates were higher than in other months. In evaluating the

seasonal variation of epistaxis among our participants we observed that the highest incidences occurred in the winter season which was 32% followed by 30% in the summer season. In analyzing the comorbidities among total participants, we found that the highest number of the participants had trauma (10%) as an additional comorbid condition followed by coagulopathy (5%), hypertension (4%), blood disease (3%), diabetes (2%) and atrial fibrillation (2%).

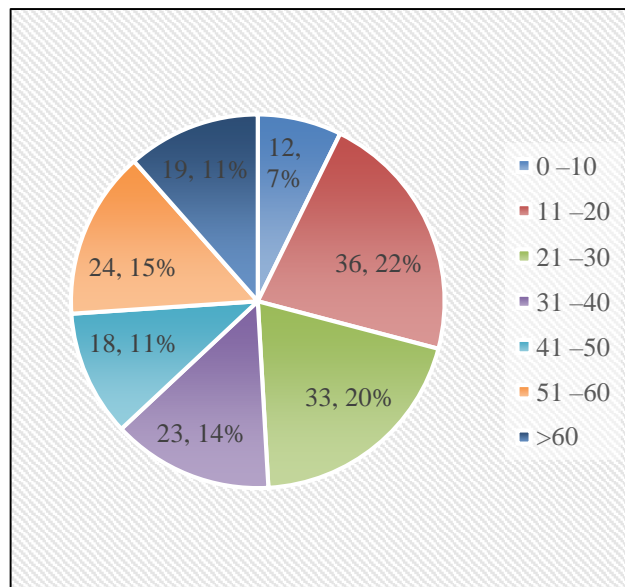


Figure 1: Distribution of participants as per age, (n=165).

Table 1: Distribution of participants as per the causes of epistaxis, (n=50).

Causes of epistaxis	N	%
Trauma	66	40
Hypertension	24	15
Idiopathic	23	14
Ulceration	13	8
Blood dyscrasia	10	6
Rhinosporidiosis	7	4
DNS & Septal spur	6	4
Angiofibroma	4	2
Atrophic rhinitis	4	2
Others	9	5

Table 2: Types of epistaxis, (n=165).

Characteristics	Type	N	%
Nasal bleeding	Bilateral	108	65.5
	Unilateral	57	34.6
Occurrence	First time	125	75.8
	Recurrent	40	24.2
Type of epistaxis	Anterior	117	70.9
	Posterior	18	10.9
	Both	30	18.2

Table 3: Month-wise incidences of epistaxis among participants, (n=165).

Months	N	%
January	9	5
February	18	11
March	16	10
April	7	4
May	13	8
June	16	10
July	21	13
August	13	8
September	11	7
October	7	4
November	9	5
December	25	15

Table 4: Seasonal variation of epistaxis, (n=50).

Season	N	%
Winter (Dec-Feb)	52	32
Spring (Mar-May)	36	22
Summer (Jun-Aug)	50	30
Autumn (Sep-Nov)	27	16

Table 5: Distribution of participants as per the comorbidities, (n=50).

Comorbidities	N	%
Trauma	16	10
Coagulopathy	8	5
Hypertension	7	4
Blood disease	5	3
Diabetes	4	2
Atrial fibrillation	3	2

DISCUSSION

This study aimed to assess the seasonal variance in the incidence rate of epistaxis. In this study, among the total participants, 70% were male whereas the rest 30% were female. So male participants were dominating in number and the male-female ratio of the participants was 2.3:1. In the investigation by Petruson and colleagues, they examined the occurrence of epistaxis within a sample of adults and noted that it was more frequently observed in the male demographic.¹³ The majority 36 (21.8%) of the cases were from the age group of 11-20 years followed by 33 (20%) were from the 21-30 years age group. These findings align with those of a study conducted by Wahab et al.¹³ Among our total participants, the highest incidence of epistaxis was from trauma (40%) followed by hypertension (15%) and idiopathic (14%). But findings in most western literature reported idiopathic causes as the commonest, followed by trauma.^{14,15} Bangladesh has a population where more than seventy percent is involved in agricultural activities, and during the harvesting season, there could be a potential increase in cases of traumatic epistaxis.¹⁶ In analyzing the monthly

wise incidences rate of epistaxis among participants we observed that, in February (11%), March (10%), June (10%), July (13%) and December (15%) the incidence rates were higher than in other months. On the other hand, in evaluating the seasonal variation of epistaxis among our participants we observed that the highest incidences occurred in the winter season which was 32% followed by 30% in the summer season. Watkinson et al in their study also reported similar seasonal incidence of epistaxis.¹⁷ Epistaxis tends to be more common in arid climates and during colder weather, attributed to the nasal mucosa's dehumidification, leading to mucosal irritation.^{18,19} However, a study by Bray et al challenges this notion, as it found no connection between epistaxis and temperature or seasonal variations, contradicting the previous perspective on the seasonal incidence of epistaxis.²⁰ All the findings of this current study may be helpful in further similar studies.

Limitation

This was a single-centered study with small-sized samples. Moreover, the study was conducted over a very short period. So, the findings of this study may not reflect the exact scenario of the whole country.

CONCLUSION

As per the findings of this current study, we can conclude that younger male individuals are mainly prone to epistaxis. The frequency of the incidence of epistaxis during the winter and summer seasons is higher than in other seasons. The month of February, March, June, July and December are very challenging for epistaxis patients. Trauma is the most common cause of epistaxis. Proper diagnosis and prompt management are very necessary for epistaxis patients. For getting more specific results, we would like to recommend conducting similar studies in several places with larger-sized samples.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Varshney S, Saxena RK. Epistaxis: A retrospective clinical study. *Indian J Otolaryngol Head Neck Surg.* 2005;57(2):125-9.
2. Yenigun A, Akyuz S. Prevalence of Allergic Rhinitis Symptoms and Positive Skin Prick Test Results in Children with Recurrent Epistaxis. *Brit J Med Med Res.* 2015;7(3):241-6.
3. Khan I, Kubba H. Evidence-based management of pediatric epistaxis. *J ENT Masterclass.* 2014;7(1):10-13.
4. Saafan M, Ibrahim W. Role of bacterial biofilms in idiopathic childhood epistaxis. *Eur Arch Oto-Rhino-Laryngol.* 2013;270(3):909-14.

5. Wahab M, Fathy H, Ismail R. Recurrent epistaxis in children: When should we suspect coagulopathy? *Egypt J Otolaryngol.* 2014;30(2):106-11.
6. Al Masum S, Arsalan A, Begum D. Epistaxis in Children: Aetiology, Management and Outcome. *Bang J Child Health.* 2015;39(2):73-6.
7. Tomkinson A, Bremmer-Smith A, Craven C, Roblin DG. Hospital epistaxis admission rate and ambient temperature. *Clinical Otolaryngol Allied Sci.* 1995;20(3):239-40.
8. Viducich RA, Blanda MP, Gerson LW. Posterior epistaxis: clinical features and acute complications. *Ann Emerg Med.* 1995;25(5):592-6.
9. Walker T, Macfarlane T, McGarry G: The epidemiology and chronobiology of epistaxis: an investigation of Scottish hospital admissions 1995-2004. *Clin Otolaryngol.* 2007;32(5):361-5.
10. Police PA, Yoder MG: Epistaxis: a retrospective review of hospitalized patients. *Otolaryngol Head Neck Surg.* 1997;117(1):49-53.
11. Sadick H, Fleischer I, Goessler U, Hormann K, Sadick M. Twenty-four-hour and annual variation in the onset of epistaxis in Osler disease. *Chronobiol Int.* 2007;24(2):357-64.
12. Petruson B, Rudin R. The frequency of epistaxis in a male population sample. *Rhinology.* 1975;13:129-33.
13. Wahab M, Fathy H, Ismail R. Recurrent epistaxis in children: When should we suspect coagulopathy? *Egypt J Otolaryngol.* 2014;30(2):106-11.
14. Mgbor NC. Epistaxis in Enugu: A 9-year Review. *Nig J Otolaryngol.* 2004;1(2):11-4.
15. Kaygusuz I, Karlidag T, Keles E, Yalcin S, Alpay HC, Sakallioğlu O. Retrospective Analysis of 68 Hospitalized Patients with Epistaxis. *Firat Tip Dergisi.* 2004;9(3):82-5.
16. World Bank. Bangladesh: Growing the Economy through Advances in Agriculture. 2019. Available at: <https://www.worldbank.org/en/results/2016/10/07/bangladesh-growing-economy-through-advances-in-agriculture>. Accessed on 22 August 2023.
17. Watkinson JC. Epistaxis in: Mackay IS Bull TR Ed volume 18. London: Butterworth's. 1997;5-7.
18. Nunez DA, McClymont LG, Evans RA. Epistaxis: A study of the relationship with weather. *Clin Otolaryngol Allied Sci.* 1990;15(1):49-51.
19. Medscapecom. Epistaxis. Available at: <https://emedicine.medscape.com/article/863220-overview#a5>. Accessed on 23 August 2023.
20. Bray D, Giddings CE, Monnery P, Eze N, Lo S, Toma AG. Epistaxis: Are temperature and seasonal variations true factors in incidence? *J Laryngol Otol.* 2005;119(9):724-6.

Cite this article as: Khan MA, Wahab MA, Alam MM, Tabassum T. Seasonal variance in the incidence rate of epistaxis. *Int J Res Med Sci* 2023;11:3249-52.