Original paper

Relationship between Epistaxis and Hypertension

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Abstract

B ackground: Epistaxis is a common symptom of diverse conditions which may present as mild recurrent bleeds or severe life threatening rhinological emergency. Children and adolescent are more often afflicted with minor episodes of anterior epistaxis, whereas the incidence of severe posterior epistaxis is greater in those who are more than 50 years old. Hypertension has been considered to be a major cause of spontaneous epistaxis for a long time. However, particularly in the recent medical literatures, the relationship between hypertension and epistaxis appears to be more controversial.

Objectives: To evaluate the relationship between hypertension and epistaxis and to compare the prevalence of the epistaxis in hypertensive patients with normotensive patients.

Methods: A prospective study was carried out on 101 hypertensive patients (group A) and 152 normotensive patients (group B) who served as a control group at Department of Medicine and ENT, Al-Hussian Teaching Hospital, Karbala during the period January to July 2015. Data from epistaxis patients for both groups were collected.

Results: Out of total 101 hypertensive patients, 61 (60%) were males and 40 (40%) were females (M: F=1.5:1). The age range was 33 to 86 years with a mean age of 58 years. Twenty-seven out of 101 hypertensive patients were found to have epistaxis. The control group (group B) were 152 normotensive patients; 104 male and 48 female (M: F=2.2:1), and only 28 participants have a history of epistaxis. The prevalence of epistaxis was not significantly higher among patients with hypertension compared to those without hypertension.

Conclusions: We demonstrated that epistaxis was unlikely associated with hypertension, and that epistaxis was not initiated by high BP. However, epistaxis was more difficult to control in hypertensive patients.

Keywords: Hypertension, Epistaxis, Emergency.

Introduction

The term 'epistaxis' is Latin, derived from the Greek, epistazein (epi–above, over; stazein – to drip)⁽¹⁾. Epistaxis is a common symptom of diverse conditions which may present as mild recurrent bleeds or severe life threatening rhinological emergency and may pose a challenge to even a skilled otolaryngologist⁽²⁾. Globally, the true incidence remains unknown, but it is estimated that 60% of the population will have at least one episode of epistaxis in their lifetime, and 6% of them will seek medical US attention. А health examination survey from 1972 of 6672 adults revealed a 7% to 14% incidence of epistaxis. (3) The general incidence from most reports from Europe and America is About 10%-15% of the population $^{(4)}$. A slight male preponderance with 55% male and 45% female has been reported, but after the age of 50 years, 'both sexes are equally affected. Epistaxis is rare in neonates but common among children and young adults, and peaks in the sixth decade giving a bi-modal age presentation ⁽⁵⁾. Children and adolescent are more often afflicted with minor episodes of anterior

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epistaxis, whereas the incidence of severe posterior epistaxis is greater in those who are more than 50 years old ⁽⁶⁾. Blood vessels in the nose run superficially through the easily-damaged mucosa and are therefore relatively unprotected. Anterior epistaxis is far more common than posterior epistaxis, accounting for 80% of cases ⁽⁷⁾.

Hypertension is a common condition, estimated to cause 4.5% of current global disease burden ⁽⁸⁾. Despite its high prevalence there is much debate as whether arterial hypertension may present with acute symptoms like epistaxis, headache, visual changes, chest pain and dyspnea⁽⁹⁾. This is particularly true for the symptom of epistaxis. Notwithstanding recent publications that suggest that epistaxis may be a warning sign of preexisting arterial hypertension⁽¹⁰⁾.

Hypertension has been considered to be a major cause of spontaneous epistaxis for a long time ^(11, 12). However, the relationship between hypertension and epistaxis appears to be more controversial (13-20). Although hypertension is often cited as a cause of epistaxis, several large studies have shown no higher rate of underlying hypertension among epistaxis patients than patients without epistaxis in ^(11,21). Hypertensive patients taking diuretic or methyldopa medications may have more epistaxis than those taking beta-blockers (60%) ⁽²²⁾. Hypertension at the time of epistaxis treatment may be anxiety related, returning to normal on control of the epistaxis and reassurance.⁽²³⁾ The diagnosis of hypertension was made on the basis of BP equal to or greater than 140 mmHg systolic and/or equal to or greater than 90 mmHg diastolic or use of antihypertensive medications, according to the report of report of the seventh 2003 US Hypertension Joint National Committee, European Society of Hypertension and European Society of Cardiology guidelines for hypertension⁽²⁴⁾.

The aim of our study is to evaluate the relationship between hypertension and

epistaxis and to compare the prevalence of the epistaxis in hypertensive patients with normotensive patients.

Patients and Methods

A prospective study was carried out on 101 hypertensive patients (group A) and 152 normotensive patients (group B) who served as a control group at Department of Medicine and ENT in Al-Hussian Teaching Hospital, Karbala during the period January to July 2015 focusing on patient's age, sex, history of epistaxis, and type of treatment and hospitalization for epistaxis. A history of hypertension was defined as patients treated with antihypertensive drugs. Patients with a self-reported history of epistaxis or who had been already hospitalized for at least one episode of epistaxis were considered to have a history of epistaxis. The epistaxis patients of both groups are examined by anterior and posterior rhinoscopy by using Killian nasal speculum and head light and flexible nasoendoscope, to evaluate the anatomical abnormalities in the nasal cavity like nasal septal deviation, nasal spur and try to find the site of bleeding. History of allergic rhinitis as a possible predisposing factor also inquired. In both groups, patients with history of trauma to nose, local pathology, renal failure, bleeding disorders, patients on aspirin, clopidogrel or anticoagulants, and children were excluded from the study.

Results

Out of total 101 hypertensive patients 61 (60%) were males and 40 (40%) were females (M: F=1.5:1). The age range was 33 to 86 years with a mean age of 58 years. Twenty-seven out of 101 hypertensive patients were found to have history of epistaxis; the prevalence rate (27/101) was 26.7% (Tab. 1). The control group (group B) were 152 normotensive patients, 104 male and 48 female (M: F=2.2:1). The age range was 31 to 80 years, only 28 out of 152 have a history of epistaxis, the

prevalence rate (28/152) was 18.4% (Tab. 2). The data collected for epistaxis patients in both groups are listed in table 3. There were only five patients need hospitalization, three of them need blood transfusion, the other 22 patients either need no treatments or simple treatments for epistaxis in hypertensive patients, while in Ahmed Abdullah Alwan

normotensive patients (control group) nearly the same results but with no need for hospitalization (Tab.3&4). The prevalence of epistaxis was not significantly higher among patients with hypertension compared to those without hypertension (26.7% versus 18.4%, P value = 0.40).

No Epistaxis				With Epi	With Epistaxis		
Age (years)	Male	Female	total	Male	Female	Total	
31-40	7	1	8	2		2	
41-50	8	5	13	1	3	4	
51-60	16	10	26	3	6	9	
61-70	12	6	18	5	4	9	
71-80	3	3	6	2		2	
80-90	1	2	3	1		1	
Total	47	27	74(73.3)	14	13	27(26.7%)	

Table 1. Age distribution of hypertensive patients, group A (N=101)

Table 2.	Age distribution	of normotensive	patients, group	B (N=152)
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No Epistaxis			With Epi	staxis				
Age (years)	Male	Female	total		Male	Female	Total	
31-40	54	20	75		11	7	18	
41-50	15	6	22		2	2	4	
51-60	7	4	10		1	1	2	
61-70	7	1	8		2	1	3	
71-80	4	3	6			1	1	
80-90	1	2	3					
Total	88	36	124(81.6%)		16		12	28(18.4%)

Table 3. Clinical Data for epistaxis patients in both groups

Clinical Data	Hypertensive	Normotensive
Number of attacks of epistaxis Once	12	11
Twice	7	8
More	8	9
Nasal septum deviation	14	12
Spur	9	10
Allergic rhinitis	4	8
Hospitalizations	5	
Blood transfusion	3	
No treatment	14	12
Chemical cautery	5	8
Electrical cautery	3	3

Table 4. Comparison between two groups

	Hypertensive group	Normotensive group	Total
History of epistaxis	27	28	55
No history of epistaxis	74	124	198
Total	101	152	253

Discussion

Association between epistaxis and hypertension is controversial⁽²⁵⁾. Our study was designed to provide an answer as to whether epistaxis may be a symptom related to the underlying presence of arterial hypertension. Increased blood pressure at presentation may be due to patients' apprehension at the sight of blood ⁽²⁶⁾. Kikidis et al. ⁽²⁷⁾ concluded that the presence of high arterial blood pressure during the actual episode of nasal bleeding cannot establish a causative relationship with epistaxis due to confounding stress and possible white coat phenomenon, but may lead to initial diagnosis of an already installed arterial hypertension. In our study, in patients with hypertension, there were only 27 patients (26.7%) have a history of epistaxis, five of them need hospitalization, the others either need no or simple treatments, whereas in the control group, 28 patients (18.4%) where found to have epistaxis, all need either no or simple treatments, no one needs hospitalization. These findings indicate no correlation between epistaxis and hypertension i.e. hypertension is not a cause of epistaxis but make control of epistaxis more difficult in patients with uncontrolled hypertension, no one need hospitalization in control group.

The prevalence of hypertension in patients with epistaxis reportedly ranges from 24% to 64 $\%^{(28)}$. In our study the prevalence of epistaxis in patients with hypertension was 26.7% and this also in agreement with (29) al. who found that Fuchs et hypertension is not associated with history of epistaxis in the adulthood. Similar results were drawn by Karras et al. (30) in a population of 1908 individuals. Lubianca Neto et al.⁽¹⁵⁾ found no definite association between blood pressure and history of adult epistaxis in hypertensive patients. Yüksel et al. ⁽³¹⁾ found that the evidence available was insufficient to prove a significant association between hypertension and epistaxis. Lima and Knopfholz⁽³²⁾ reported that epistaxis was unlikely to be a

hypertensive emergency. Gifford and Orlandi ⁽³³⁾ found that the control of epistaxis may be more difficult in patients with hypertension. Our results were in contrast with the results of Herkner et al. ⁽³⁴⁾ who found that patients with epistaxis have a higher blood pressure compared to that of control patients. Isezuo et al. ⁽¹⁾ also found an association between epistaxis and hypertension.

Conclusions

We demonstrated that epistaxis is unlikely associated with hypertension, and that epistaxis was not initiated by high BP. However, epistaxis was more difficult to control in hypertensive patients.

References

- 1. Swift AC. Epistaxis. Otorhinolaryngologist 2012; 5: 129–32.
- Nnennia CM. Epistaxis in Enugu: a 9 year review. Niger J Otorhinolaryngol 2004; 1:11– 4.
- Santos PM, Lepore ML. Epistaxis. In: Bailey BJ, Calhoun KH (Eds). Head and Neck Surgery - otolaryngology. Lippincott-Raven, Philadelphia.1998; 513-529.
- Roland NJ, McRae RDR, McCombe AW. Key topics in otolaryngology and head and neck surgery. Bios Scientific Publishers, Oxford. 2001; 72.
- Varshney S, Saxena RK. Epistaxis: a retrospective clinical study. Indian J Otolaryngol Head Neck Surg 2005; 57: 125–9.
- 6. Juselius H: epistaxis; clinical study of1724 patients; J laryng Oto 1974; 88:317-27.
- Marx JA, Hochberger RS, Walls RM. Rosen's Emergency Medicine: Concepts and Clinical Practice, 5th edition. St. Louis, MO: Mosby; 2002.
- Panagiotakos DB, Pitsavos CH, Chrysohoou C, Skoumas J, Papadimitriou L, Stefanadis C, Toutouzas PK. Status and management of hypertension in Greece: role of the adoption of a Mediterranean diet: the Attica study. J Hypertens 2003; 21:1483-1489.
- Karras DJ, Ufberg JW, Harrigan RA, Wald DA, Botros MS, McNamara RM. Lack of relationship between hypertension-associated symptoms and blood pressure in hypertensive ED patients. Am J Emerg Med 2005; 23: 106-110?

- Herkner H, Havel C, Mullner M, Gamper G, Bur A, Temmel AF, Laggner AN, Hirschl MM: Active epistaxis at ED presentation is associated with arterial hypertension. Am J Emerg Med 2002; 20: 92-95?
- 11. Mitchell JR. Nose-bleeding and high blood pressure. Br Med J 1959; 1:25–27
- 12. Charles R, Corrigan E. Epistaxis and hypertension. Postgrad Med J 1977; 53:260– 261
- 13. Isezuo SA, Segun-Busari S, Ezunu E, Yakubu A, Iseh K, Legbo J, Alabi BS, Dunmade AE, Ologe FE. Relationship between epistaxis and hypertension: a study of patients seen in the emergency units of two tertiary health institutions in Nigeria. Niger J Clin Pract 2008; 11:379–382
- Fuchs FD, Moreira LB, Pires CP, Torres FS, Furtado MV Moraes RS, Wiehe M, Fuchs SC, Lubianca Neto JF. Absence of association between hypertension and epistaxis: a population-based study. Blood Press 2003; 12:145–148
- 15. Lubianca Neto JF, Fuchs FD, Facco SR, Gus M, Fasolo L, Mafessoni R, Gleissner AL. Is epistaxis evidence of endorgan damage in patients with hypertension? Laryngoscope 1999;109:1111–1115
- 16. Lubianca-Neto JF, Bredemeier M, Carvalhal EF, Arruda CA, Estrella E, Pletsch A, Gus M, Lu L, Fuchs FD . A study of the association between epistaxis and the severity of hypertension Am J Rhinol 1998; 12:269–272
- Herkner H, Laggner AN, Mu'llner M, Formanek M, Bur A, Gamper G, Woisetschla"ger C, Hirschl MM. Hypertension in patients presenting with epistaxis. Ann Emerg Med 2000; 35: 126–130
- Herkner H, Havel C, Muillner M, Gamper G, Bur a, Temmel AF, Laggner AN, Hirschl MM. Active epistaxis at ED presentation is associated with arterial hypertension. Am J Emerg Med 2002; 20:92–95
- Knopfholz J, Lima-Junior E, Pre'coma-Neto D, Faria-Neto JR. Association between epistaxis and hypertension: a one year followup after an index episode of nose bleeding in hypertensive patients. Int J Cardiol 2009; 134:e107–e109
- Celik T, Iyisoy A, Yuksel UC, Karahatay S, Tan Y, Isik E. A new evidence of end-organ damage in the patients with arterial hypertension: epistaxis? Int J Cardiol 2009; doi:10.1016/j.ijcard. 2008.11.090
- 21. Weiss NS: Relation of high blood pressure to headache, epistaxis, and selected other symptoms. N Engl J Med 1972; 287:631-633.

- 22. Dhillons RS, East CA: Ear, Nose and Throat and Head and Neck Surgery. London, Churchill Livingstone, 1994
- 23. Jackson KR, Jackson RT: Factors associated with active, refractory epistaxis. Arch Otolaryngol Head Neck Surg 1988; 114:862-865.
- 24. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo Jr JL, et al.. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure: the JNC 7 report. JAMA 2003; 289:2560–72.
- 25. Knopfholz J, Lima-Junior E, Précoma-Neto D, Faria-Neto JR. Association between epistaxis and hypertension: a one year follow-up after an index episode of nose bleeding in hypertensive patients. Int J Cardiol 2009; 134: e107–9.
- 26. Bhatta R. Clinical profile of idiopathic epistaxis in a hospital. JNMA J Nepal Med Assoc 2012; 52:167–71.
- 27. Kikidis D, Tsioufis K, Papanikolaou V, Zerva K, Hantzakos A. Is epistaxis associated with arterial hypertension? A systematic review of the literature. Eur Arch Otorhinolaryngol 2014; 271:237–43.
- 28. Herkner H, Havel C, Müllner M, Gamper G, Bur A, Temmel AF, et al... Active epistaxis at ED presentation is associated with arterial hypertension. Am J Emerg Med 2002; 20:92– 5?
- 29. Fuchs FD, Moreira LB, and Pires CP, Torres FS, Furtado MV, Moraes RS, et al... Absence of association between hypertension and epistaxis: a population-based study. Blood Press 2003; 12:145–8.
- 30. Karras DJ, Ufberg JW, Harrigan RA, Wald DA, Botros MS, McNamara RM. Lack of relationship between hypertension-associated symptoms and blood pressure in hypertensive ED patients. Am J Emerg Med 2005; 23:106– 10?
- Yüksel A, Kurtaran H, Kankiliç ES, Ark N, Ug` ur KS, Gündüz M. Epistaxis in geriatric patients. Turk J Med Sci 2014; 44:133–6.
- 32. Lima E, Knopfholz J. Co30 Relationship between epistaxis and arterial pressoric blood levels: is epistaxis a hypertensive emergency? Am J Hypertens 2000; 13: 220A.
- 33. Gifford TO, Orlandi RR. Epistaxis. Otolaryngol Clin North Am 2008; 41:525–36.
- 34. Herkner H, Laggner AN, Müllner M, Formanek M, Bur A, Gamper G, et al. Hypertension in patients presenting with epistaxis. + Ann Emerg Med 2000; 35:126–30.