

Original Article

Hypertension Among Patients Presenting with Epistaxis in a Tertiary Care Center: A Descriptive Cross-sectional Study

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ABSTRACT

Introduction: Epistaxis is one of the most common emergency condition. Hypertension has been considered to be a major cause of spontaneous epistaxis for a long time. The objective of this study is to determine the prevalence of hypertension among patients presenting with epistaxis in a tertiary care hospital.

Materials and Methods: A descriptive cross-sectional study was conducted in the patients visiting Kathmandu Medical College and Teaching Hospital with active nose bleeding from January 2023 to December 2023. Patients visiting the Emergency Department with active nose bleeding were included in the study by convenience sampling method. The blood pressure (BP) was measured in the Emergency Department at the time of presentation and patients with BP of >140/90 mmHg were considered to be hypertensive. Data was collected and statistical analysis was done in Statistical Packages for Social Services version 22.

Results: A total of 250 patients were included for this study. The prevalence of hypertension in patients with epistaxis in the present study is 28.8 %. Hypertension was more common in males and elderly patients above 60 years.

Conclusions: Our study showed that hypertension was more common in male and elderly patients. Regular blood pressure monitoring should be advised for elderly patients. Other causes of epistaxis could be explored in future studies.

Keywords: Blood pressure; Epistaxis; Hypertension.

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Submitted: March 19, 2024

Accepted: May 9, 2024

Source of Support: None

Conflict of Interest: None

Citation: Khakurel G. Hypertension Among Patients Presenting with Epistaxis in a Tertiary Care Center: A Descriptive Cross-sectional Study. NMJ 2024;6(1): 639-41. DOI: 10.3126/nmj.v6i1.71018.



INTRODUCTION

Epistaxis is a common otolaryngological emergency condition. It affects up to 60% of people at some point in their lives, with around 6% seeking medical attention. It can occur from various causes including trauma (iatrogenic or spontaneous), local inflammation or infection, systemic issues like platelet and coagulation abnormalities, alcoholism and hypertension.¹ However, in some

cases, it can be severe and even life-threatening. Hypertension has traditionally been identified as the primary factor linked to epistaxis, with reported prevalence rates ranging from 24% to 64% among affected patients.² Chronic vascular damage like the end-organ injury has been suggested as a possible mechanism linking hypertension to epistaxis.³

The relationship between hypertension and epistaxis is debated in the literature, with some authors reporting a significant link⁴, while others have found no association between epistaxis and high blood pressure.⁵⁻⁶ A significant issue is whether high blood pressure (BP) observed during an initial examination truly indicates hypertension, as factors like anxiety from bleeding or “white coat syndrome” can elevate BP readings. Therefore, high BP alone may not confirm hypertension or be directly attributed to the cause of the nosebleed episode.⁷

Each individual with epistaxis should be examined to identify the reason behind it. Understanding the etiological profiles is important to create effective prevention methods and treatment plans. The study was aimed to estimate the prevalence of hypertension among patients with epistaxis admitted in our institute.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted among patients visiting the Emergency Department of Kathmandu Medical College and Teaching Hospital (KMCTH), Sinamangal, Nepal with active nose bleeding. Data collection was done after obtaining ethical approval from the Institutional Review Committee of the same institute (Reference number: 23122022/04). Patients were informed regarding the study and informed written consent was taken prior to the study. The patients who met the inclusion criteria were recruited consecutively from January 2023 to December 2023. The study excluded individuals with a history of nasal trauma, local nasal conditions, systemic diseases including hypertension, bleeding disorders, and children.

The information on age, gender, symptoms, and management was obtained from the case records. In all the cases, initial brief history followed by detailed history after the management of acute symptom was taken followed by general physical examination and local ENT examination. Complete hematological investigations was recorded. The blood pressure was recorded in supine position using aneroid sphygmomanometer at Emergency Department at the time of presentation. According to the Joint National High Blood Pressure, hypertension is defined as a systolic blood pressure of 140 mm Hg or higher or a diastolic blood pressure of 90 mm Hg or higher. Patients with BP of >140/90 mmHg was considered to be hypertensive.² The data was entered and analyzed using the statistical Package for Social Science (SPSS version 22.0) and the descriptive statistical analysis was done.

RESULTS

A total of 250 patients with epistaxis were included in the present study with age range from 21 to 82 years. There were 162 (64.80 %) male and 88 (35.20 %) female patients. Hypertension was present in 72 (28.80 %) patients and 178 (71.20 %) patients were non hypertensive. Among 72 hypertensive patients, 49 (68.05 %) were males and 23 (31.94%) were females. Age-wise distribution of hypertension showed that the rise in blood pressure increased with the age and maximum in patients above 60 years (Table 1)

Table 1: Gender distribution of study subjects (n=250)

Gender	n (%)
Male	162 (64.80)
Female	88 (35.20)

Table 2: Prevalence of hypertension (n=250)

Blood pressure during active bleeding	n (%)
>140/90 mmHg	72 (28.80)
<140/90 mmHg	178 (71.20)

DISCUSSION

A total of 250 patients with epistaxis were included in our study. The prevalence of hypertension in patients with epistaxis was 28.80 %. This finding is in consistent with previous studies done in Nepal at Chitwan Medical College (2015)⁶, and Gandaki Medical College, Pokhara (2019)⁸, where low prevalence of hypertension was identified as 27.38 % and 20.50 % respectively.

This study is not in agreement with the studies done in Riyadh⁹ and North East India¹⁰ where prevalence of hypertension was 45 % and 59.25 % respectively. The differences in prevalence could be due to difference in sample size, inclusion and exclusion criteria for sample selection and diagnostic criteria for hypertension. The prevalence of hypertension and higher diastolic blood pressure levels was not greater among patients with nosebleeds, those who experienced nosebleeds had significantly higher systolic blood pressure levels. This suggests a potential link between higher systolic blood pressure and the occurrence of nosebleeds.¹¹

In the present study epistaxis was more commonly seen affecting males than females. There were 162 (64.80 %) males and 88 (35.20 %) females with male female ratio as 1.84 :1. In the study done by Pandey BR¹², there were 63 (57.80 %) males and 46 (42.20 %) females with male to female ratio 1.36:1. In another study, 74 (71.15%) males and 30 (28.85%) females were having epistaxis with male to female ratio 2.47:1.¹³ In contrast to these findings, a study done by Richard E et al¹⁴ in Tanzania showed that the prevalence of epistaxis was higher among females compared to males with male to female ratio of 1:2. The possible explanation for this is that the female premenopausal state may provide a significant protection from this state. The exact cause is unknown but could be due to estrogen affecting the nasal tissue or blood vessels, or helping them heal. Alternatively, this could just indicate the general protection against cardiovascular disease that the pre-menopausal state offers.¹⁵

The prevalence of hypertension in epistaxis patients was high in elderly patients above 60 years. In old age, there is loss of elastic and contractile property of the arteries, so they have more chances of nosebleed than young patients.¹²

Hypertension is common above 40 years of age. Hypertension was the first common cause of epistaxis in a study done by Hanif M et al¹⁶ whereas the other study showed hypertension as the third commonest cause.⁸

This is contrary to findings by Eziyil JAE et al¹⁷ where epistaxis was found to be more common in the young adults. The lower age incidence compared with some studies may have resulted

from the fact that 70.8% of the cases had traumatic epistaxis and patients with traumatic epistaxis tended to be younger than those with atraumatic epistaxis.¹⁸ In the present study we have excluded the traumatic epistaxis.

Chronic vascular injury is proposed as possible mechanism linking hypertension with epistaxis. High blood pressure may damage the vascular endothelial wall through oxidative stress making the vessels more fragile.³ Patients experiencing both epistaxis and high blood pressure are more likely to have atherosclerosis. The vascular condition in hypertensive individuals may contribute to the development of bleeding in these cases.¹⁹ In a postmortem study, degenerative fibrous changes of nasal vessels were observed in patients with hypertension.²⁰ Another reason why patients with epistaxis tend to have higher overall blood pressure is that a bleeding lesion in an area with abundant autonomic

innervation could trigger an arousal reaction, which may result in elevated blood pressure.⁴

The study's limitations include epistaxis cases from a single tertiary care hospital, which represents a small percentage of the population. Consequently, generalizing the results to the entire population may be challenging. We could not follow up the patients after treatment for blood pressure measurement.

CONCLUSIONS

Epistaxis is a medical emergency and hypertension is considered as one of the cause. Our study showed that epistaxis was more common in male and elderly patients. Other causes of epistaxis could be explored in future studies.

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