Tanzania Journal of Health Research
Volume 24, Number 4, October 2023
https://dx.doi.org/10.4314/thrb.v24i4.11

Epistaxis: Prevalence and severity among Hypertensive patients attending District hospital in Tanzania

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Abstract

Background: Epistaxis is one of the common ENT emergency conditions. Most of the time the bleeding is self-limited, but can be life-threatening. Serious spontaneous epistaxis may reveal underlying true hypertension in about 43% of patients with no previous history of hypertension. It can result from several causes and hypertension is among the aggravating factors.

Objective: The study aimed to determine the prevalence and severity of epistaxis among hypertensive patients.

Material and method: This study was a prospective cross-sectional study conducted from October 2021 to April 2022 involving a total of 196 adult patients with hypertension at a district hospital in Tanzania. A consecutive sampling technique was employed and structured questionnaires were used to collect data. Data entry was performed using SPSS version 25 and a P value of <0.05 was considered statistically significant.

Result:196 patients aged above 30 years were recruited, the majority of the patients were females (63%) and males were only (37%). The Prevalence of epistaxis was found to be lower among patients with hypertension aged below 40 years which accounted for 4.2%. However, patients aged 51-60 had a high prevalence of epistaxis (41.7%). The overall prevalence of epistaxis among hypertensive patients was found to be (12.2%) of which (62.5%) were females and (37.5%) were males. Furthermore, in this study, it was found that the severity of epistaxis among hypertensive patients was mild to moderate with (2%) of patients who required nasal packing. In this study (1%) of patients had mild epistaxis and (2%) had moderate epistaxis but no patients were found to have severe epistaxis as per the epistaxis severity score (ESS) by Jeffrey B. Hoag (Score tool).

Conclusion and recommendation: Epistaxis can result from several local and systemic conditions. Hypertension is one of the systemic causes of epistaxis among our patients which is still prevalent in our settings, however slightly low as compared to the previous studies. Females have a higher occurrence of epistaxis compared to males and the most common age group involved are patients in the fifth and sixth decades. Likewise, in terms of severity, most of the time is mild to moderate. The healthcare providers managing these groups of patients should also evaluate the co-existence of the two disorders for a better outcome of treatment.

Keywords: Prevalence, adults, epistaxis, severity, hypertension.

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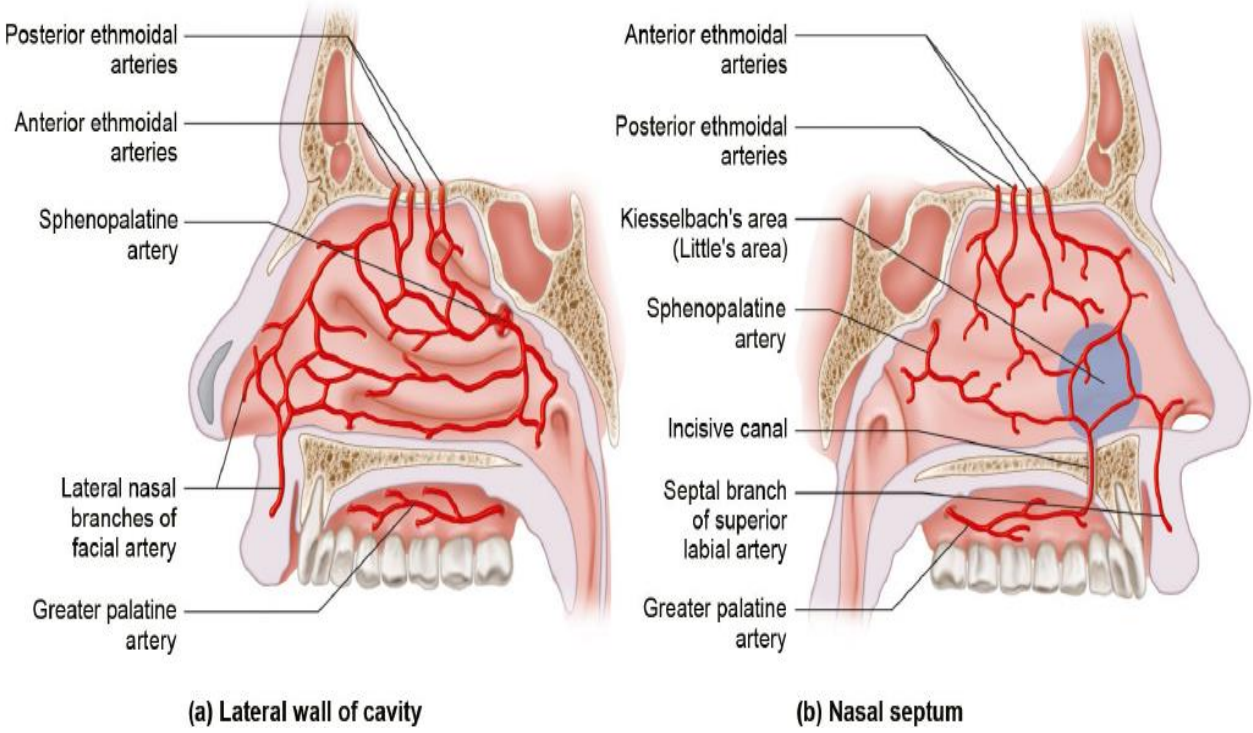
Background

Epistaxis comes from the Greek word "epistazein" which means, "bleed from the nose" and is a combination of the two words: "epi" meaning "upon" and "stazein" meaning "to drip". It is common and is seen in all age groups: children, adults, and older people. It often presents as an emergency. Epistaxis is a sign and not a disease per se and an attempt should always be made to find any local or systemic cause. It has been estimated that up to 60% of individuals in the population had at least one episode of epistaxis throughout their lifetime with 6% of those with epistaxis seeking medical attention, with 1.6 in 10,000 requiring hospitalization (Viehweg et al.2006, Chalya et al.2011).

Two classifications of epistaxis exist, Anterior and posterior based on bleeding sites. Anterior epistaxis originates from little's area and occurs when blood flows out from the front of the nose with a patient in a sitting position and posterior epistaxis originates from Woodruff's plexus, Mainly the blood flows back into the throat. Anterior epistaxis is more common than posterior epistaxis and it accounts for more than 80% of the cases (Wilkins et al.2006).

Figure: Blood supply of lateral wall of the nasal cavity and nasal septum



Adopted from https://plasticsurgerykey.com/nasal-cavity-and-paranasal-sinuses/#c016_f006

In hypertension, the pathophysiology of serious spontaneous epistaxis remains unclear. It mainly occurs in elderly patients 60-70 years with a history of hypertension, in about 50% of cases. Serious spontaneous epistaxis may reveal underlying true hypertension in about 43% of patients with no previous history of hypertension. Serious spontaneous epistaxis probably results from several combinations of causes however hypertension is among the burden for epistaxis (Aurellie et al.2011, Byun et al.2020, Sambo et al.2014, Isezuo et al.2008).

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Understanding the prevalence of epistaxis is very important, as this will help us to lay more effort into the management of our patients. Likewise knowing its severity from its local or systemic causes will alert us to taking important precautions to serve our patients.
It is known that 60% of the population experience a nosebleed at once, One-tenth of these patients eventually seek medical advice/intervention, and 0.16% will need hospitalization (Passali et al.2020, Al et al.2020). The prevalence of epistaxis in hypertension globally is between 24% and 64% (Dvid et al.2020), however previous studies show that; in Tanzania the prevalence is 15% (Abraham et al.2017). This causes a great burden among hypertensive patients when epistaxis occurs, and it brings challenges in controlling bleeding (Lee et al.2020). In Tanzania, few studies are done regarding the prevalence of epistaxis in hypertension. In addition, they did not study the relationship between HTN and the severity of epistaxis. There are no recent studies on the severity of epistaxis in hypertensive patients which have been done. Therefore, this creates a knowledge gap and opens a chapter for this study on the prevalence and severity of epistaxis among hypertensive patients attending a District hospital in Tanzania. This study will help clinicians who deal with patients with epistaxis to check and monitor hypertension to get quick and good control of epistaxis to prevent long hospital stay and the mortality which can arise, also it creates awareness to the hypertensive patients so that they take early precautions when nose bleeding occurs.

Method

Study design, settings, and population

This was a cross-sectional study conducted at a District Hospital in a hypertensive clinic from October 2021 to April 2022.A consecutive sampling technique was used. All patients who met the inclusion criteria were enrolled in the study until the required number was reached. Patient selection was done where all diagnosed hypertensive patients aged 18 years and above were recruited by the attending nurses before patients see the attending physician and at this stage, selected patients signed the informed consent form. The sample size was calculated using Fisher's formula using the prevalence from the study done previously in Tanzania where the prevalence was 15% and the estimated size was 189 whereas the enrolled study participants were 196.

Data collection technique

A structured questionnaire was used to take socio-demographic characteristics, history, severity of epistaxis and confirmation of hypertensive status. The medical history was obtained from the patient files. From the history the severity of epistaxis was scored using Epistaxis severity score tool.

Study Tools

Questionnaires and Epistaxis severity score tool by Jeffrey B Hoag

Data analysis

Using SPSS version 25, descriptive statistics were used to describe data on the prevalence and severity of epistaxis among hypertensive patients. The chi-square test was used to assess the association between demographic, comorbidity, and severity of epistaxis in hypertension. The p-value < 0.05 was considered statistically significant.

Ethical approval

Ethical clearance was obtained from the MUHAS Institutional Review Board. Permission to conduct the study was sought from the Medical officer in charge at the Hospital and consent was obtained from all study participants before enrollment.

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Results

Demographic characteristics of the study population

A total of 196 patients with hypertension attending the clinic were involved in the study, the majority of them were females (63%) and males (37%). The study included all adult patients 18 years and above. In this study the youngest participant was 21 years old and the oldest was 79 years old, a large proportional of study participants were aged 51-60 (43.9%), where (43.9%) were females and (43.8%) were males.

Table1: Demographic characteristics of the study population

Age Groups	Sex		Total (%)
	Female (%)	Male (%)	
31-40	6 (4.9)	1(1.4)	7(3.6)
41-50	23(18.7)	5 (6.8)	28(14.3)
51-60	54(43.9)	32 (43.8)	86(43.9)
61-70	32(26.0)	26(35.6)	58(29.6)
71 and above	8 (6.5)	9(12.3)	17(8.7)
Total	123(63)	73(27)	196 (100.0)

Prevalence of epistaxis among study participants by age and sex

Among the 196 recruited participants the prevalence of epistaxis was12.2 %. Males were less affected as compared to females by 37.5% and 62.5% respectively. The prevalence of epistaxis was lower among patients below 40 years (4.2%) while being higher among patients 51-60 years of age (41.7%) followed by patients aged 61-70 years (29.2%).

Table 2: Prevalence of epistaxis among study participants by age and sex

		Epistaxis		
		Yes (%)	No (%)	Total (%)
Sex	Female	15(62.5)	108(62.8)	123(62.8)

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	Male	9(37.5)	64(37.2)	73(37.2)
	Total	24(12.2)	172(87.8)	196(100.0)
Age	31-40	1 (4.2)	6 (3.5)	7(3.6)
	41-50	4(16.7)	24 (14.0)	28(14.3)
	51-60	10(41.7)	76 (44.2)	86(43.9)
	61-70	7(29.2)	51(29.7)	58(29.6)
	71 and above	2 (8.3)	15(8.7)	17 (8.7)
	Total	24 (12.2)	172 (87.8)	196 (100)

Severity of epistaxis

By using the epistaxis severity score, it was found that most hypertensive patients who had epistaxis had mild to moderate severity. In this study, 1% of the study participants had mild epistaxis, and (2%) had moderate epistaxis. During the study period, no hypertensive patient was found to have severe hypertension Table 3.

Table 3: Epistaxis severity score (ESS) by Jeffrey B. Hoag (Score tool)

Epistaxis		Frequency	Percent
	NO	172	87.8
	YES		
Severity	No severity (0 score)	18	9.2
	Mild (score 1-4)	2	1.0
	Moderate (score 5-7)	4	2.0
	Severe (score 8-10)	0	0
	Total	196	100.0

Discussion

The study aimed to determine the prevalence and severity of epistaxis among hypertensive patients. In a study population of 196 participants, the overall prevalence of epistaxis was found to be (12.2%). A study done by Abraham et al found that the prevalence of epistaxis in hypertensive patients was (15%), and in a similar study by Gilyoma et al, the prevalence was (17.3%), although the findings are nearly similar, there is a slight decline in prevalence possibly because of the differences in the study methodology, sample size and the inclusion criteria (Abraham et al 2017,Gilyoma et al 2011).

In this study, the prevalence of epistaxis among females was higher compared to males with male to female ratio of 1:2 which differs from a study by Gilyoma et al, where males were affected twice than females (2.7:1) (Gilyoma et al 2011, Mwai). The prevalence of epistaxis in this study according to age group was found to be high among patients in their fifth and sixth-decade of life compared to the lower age. This is similar to other studies done previously (Awuah et al.2012,

Sambo et al.2014, And et al.2008). The reason behind this possibly elderly age and other comorbidities may be a contributing factor for epistaxis rather than hypertension itself.

This study found that the severity of epistaxis among hypertensive patients was mild to moderate (2%). This is different compared to a study which found the severity to increase by (7%) (Shresthal et al.2015). A similar study in Saudi Arabia showed the severity was high by (13%) (Sarhan et al.2014). The reasons for these variations are not known however, other local and systemic causes apart from hypertension by itself may increase the severity.In this study, it was also found that among these patients who had mild to moderate epistaxis, 2% of them required nasal packing. This is different compared to a similar study done previously which found posterior nasal packing was 16.66%, endoscopic cauterization of SPA was 2.38%, and 5.95% required blood transfusion (Parajuli et al.2005)

Conclusion

Epistaxis as one of the Otorhinolaryngological emergencies and hypertension is one of the aggravating factors among patients in our setting. Females have a higher prevalence of epistaxis compared to males and the most common age group involved are patients in their fifth and sixth decades of life. The severity of epistaxis in hypertensive patients was noted to be mild to moderate. Clinicians should be aware of the link between hypertension and epistaxis All patients with epistaxis should be checked for hypertension and those with hypertension should be educated on preventive measures for epistaxis

Acknowledgements

We would like to thank the District Hospital management for allowing us to conduct this study.

Authors' contributions

ER and MM conceived the study. ER and MM collected data, performed analysis and data interpretation. ER and MM drafted and revised the manuscript. All authors read and approved the final manuscript.

Funding

No funding was received for conducting this study.

Competing interests

The authors declare no competing interests

Availability of data and material

All data generated or analyzed during this study are included in this published article

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