ISSN: 2714-4674 (Online)
ISSN: 2714-4666 (Print)

Annals of Clinical and Experimental Medicine

(ACEMedicine)

This Journal Is A Publication of
ASSOCIATION OF SPECIALIST MEDICAL DOCTORS IN ACADEMICS SOKOTO STATE CHAPTER

Volume 1, No. 2, July - December 2020

In this issue

www.acemedicine.asmeda.org

Epistaxis among children in Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria

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ACCESS TO THIS ARTICLE ONLINE

DOI: 10.47838/acem 26011977.127122020.asmeda.1.1

Website
http://www.acemedicine.asmeda.org

Abstract

Background: Epistaxis is a life-threatening otorhinolaryngological emergency and presents as a symptom of varied clinical conditions. The study was designed to determine the frequency and forms of epistaxis among children in Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, Nigeria.

Materials and Methods: It was a prospective study of children ≤ 12 years with epistaxis presenting to UDUTH, Sokoto from January to December 2017. Information on age, gender, causes, nature, and laterality of epistaxis was collected and analyzed.

Results: Of 1078 children who presented with otorhinolaryngological complaints during the study period, 39 (3.6 %) had epistaxis, with majority 14 (35.9 %) of children aged 7 – 8 years. Epistaxis was more prevalent in males than females in the ratio 1.6:1. Epistaxis *digitorum* was the most common cause 19 (48.7 %) of epistaxis in children in the study area. First episode epistaxis was more common 35 (89.7 %) than recurrent epistaxis 4 (10.3 %), while bilateral epistaxis was more 26 (66.7 %) than unilateral epistaxis 13 (33.3 %). There were more children with left unilateral epistaxis 10 (25.6%) than right epistaxis 3 (7.7 %).

Conclusion: The study shows a 3.6 % prevalence of epistaxis among children ≤ 12 years who presented to UDUTH, Nigeria with otorhinolaryngological complaints. Epistaxis *digitorum* was the commonest cause of epistaxis, while first episode epistaxis was more common than recurrent epistaxis.

Keywords: Epistaxis, Children, Prevalence, Epistaxis *digitorum*.

Introduction

Epistaxis is a Greek word for `dripping` referring to bleeding from the nasal cavity and nasopharynx (1). It may be a mild, moderate, or life-threatening otorhinolaryngological emergency (2). Nose bleeding is a symptom of varied clinical conditions and may present as recurrent or first episode bleeds (3-6). Traditionally, epistaxis has been classified based on its aetiology. However, most epistaxis causes are unknown; hence, the classification based on local and systemic causes is unsuitable (7). Currently, a structured clinical classification into primary or secondary, childhood or adult, and anterior or posterior is more ideal[8]. This classification is based on the pattern of presentation of the nose bleed. Classification of epistaxis into childhood or adult is based on the bimodal pattern of its occurrence (2,8,9). There is a pronounced variation in the age of occurrence with childhood and adulthood (2). Childhood nose bleed is more common than adulthood (2,8).

Epistaxis may be anterior or posterior based on the site where the bleeding originates from (10).

Anterior epistaxis is bleeding from a site anterior to the piriform aperture plane, while posterior epistaxis is bleeding from a site posterior to the piriform aperture (5). The former is more common in children, usually following nose picking, while the latter is seen in adults, probably due to hypertension and atherosclerosis (11). Nose picking has been reported as the most common cause of epistaxis in children (8,12). Other causes are trauma, infections, blood dyscrasias (leukemia, Von Willebrand`s disease, thrombocytopenia or hereditary hemorrhagic telangiectasia), and tumours (nasopharyngeal, angiofibroma or rhabdomyosarcoma) (13,14); also childhood epistaxis of unknown cause has been reported (15).

Epistaxis is generally common in children aged 3 – 8 years (15), but rare in children below 2 years (16). However, a prevalence of 30 % has been reported in children aged 0 – 5 years, 56 % in 6 – 10 years, and 64 % in 11 – 15 years (17). Information on the prevalence of epistaxis of children in Nigeria, particularly in Sokoto, is scarce. The objective of the study was to establish the prevalence and forms of epistaxis among children who presented to UDUTH, Nigeria.

Materials and Methods

Study location

The study was carried out at the Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, Nigeria. Sokoto State is situated between 5^0 and 6^0E and 13^0 and 14^0N in Nigeria. The center serves as a referral unit to several hospitals within the Northwestern region of Nigeria.

Study design

This was a prospective hospital-based study of consecutive new and old children who presented with epistaxis to UDUTH, Sokoto from January to December 2017. Information on the patient`s age, gender, causes, nature, and laterality of epistaxis were obtained and noted.

Study population

The study population were children 12 years and below, presenting with epistaxis to the Department of ENT and Paediatric ward of UDUTH. Children above 12 years were excluded from this study.

Ethical consideration

Approval was obtained from the Human Research and Ethics Committee of UDUTH with approval number UDUTH/HREC/ 2016/No. 496.

Data collection

The children were clinically assessed using the standard protocol. Simultaneously, information such as biodata details, duration of epistaxis, unilaterality or bilaterality, history of bleeding from other sites, family history of bleeding disorders were obtained from their caregivers.

Statistical analysis

Data obtained were analyzed using descriptive statistics and presented in tables.

Results

The age and gender demographics are presented in Table 1. A total of 1,078 children aged 0 - 12 years presented to the ENT and Paediatric ward with otorhinolaryngological complaints during the study period. Out of this, 39 had epistaxis showing a prevalence of 3.6 %. Epistaxis was more prevalent 14 (35.9 %) in children aged 7 – 8 years, followed by age group 5 – 6 years 9 (23.1 %), then 9 - 10 years 8 (20.5 %). Age groups 1 – 2 and 11- 12 years were the least with 1 (2.6 %). Epistaxis was more common among males than females with a 1.6:1 ratio. The causes of epistaxis are presented in Table 2. Epistaxis *digitorum* was the most common cause 19 (48.7 %) of epistaxis in children. This was followed by rhinosinusitis 12 (30.8 %), trauma 3 (7.7 %), and foreign body 2 (5.1 %). The result of the nature and laterality of

epistaxis in children is presented in Table 3. First episode epistaxis was more common 35 (89.7 %) than recurrent epistaxis 4 (10.3 %). Based on laterality, bilateral epistaxis was more 26 (66.7 %) than unilateral epistaxis 13 (33.3 %), while left unilateral 10 (25.6%) were more than right 3 (7.7 %).

Discussion

Epistaxis is very common in children, although the exact prevalence is unknown as it is self-limiting in most children, and they rerely seek medical intervention (18). In the present study, a prevalence of 3.6 % was obtained. This is lower than 8.6 % observed by Makura (13) in Alder Hey, Liverpool. The variation may be attributed to differences in the study area. Liverpool is a developed city with advances in technology and increased awareness as opposed to our study area, which is in a developing country where health care facilities are not readily accessible to all. Besides, the present study was for 12 months, unlike that of Makura and colleagues, which was over four months. This period may have been during the cold season, which is associated with dryness of the nasal mucosa, irritation, leading to digital trauma and, subsequently, a high prevalence of epistaxis (12). Our study's prevalence is lower than the 5.6 % - 8.6 % recently reported in the general population in the study area (19-20). This may be due to the narrow age interval for children used in the present study as compared to the wide age interval used in those studies, which involved children, teens, adults, and geriatrics. This may further buttress our earlier hypothesis that children with epistaxis rarely present to health care facilities for intervention. Epistaxis was more prevalent in children age 7-8 years, followed by age 5-6 years and 9-10 years but lowest in the age group 1-2 years and 11-12 years. This is similar to the findings of Sinha, Qureishi & Burton, and Ruddy *et al*. (18,21,22). It is also similar to the report of Makura *et al*. (13), although they reported a peak at 11 years. The relatively high prevalence of epistaxis in children 5-10 years may be due to increased tendencies for exploration in this age group. This age group usually engage in poking of their nose and fights leading to epistaxis. In the present study, male children with epistaxis were more than females with a male to female ratio of 1.6:1. This corroborates earlier reports by Sengupta *et al.*, Davies *et al.*, and Sinha (15,18,23). It also corroborates other studies involving the general population (2,6,7,20). Higher prevalence of epistaxis among male children may be due to increased activity in this gender, who tend to get involved in more violent activities than their female counterparts (24,25).

Trauma as an aetiology of epistaxis ranges from minor trauma seen in nose picking (epistaxis *digitorum*) to nasal injury from blows or even road traffic injury (26). In the present study, digital trauma was identified as the most common cause of epistaxis. This is in agreement with the report of Sinha (17) but disagrees with the report of Makura *et al*. (13). It also agrees with the reports of Olatoke and Gilyoma & Chalya in the general population (12,27). However, other studies report that epistaxis of unknown origin (idiopathic epistaxis) is the commonest aetiology (2,7,28). Nasal trauma is a common cause of paediatric epistaxis, since children are prone to nasal vestibulitis, which leads to soreness, inflammation, and crusting around the nasal vestibule (29). These crusts around the vestibule can cause irritation and itching leading to nose-picking. Moreover, the vessels in the anterior area of the septum are superficial and exposed to dry air (8). Digital trauma to this region would quickly lead to epistaxis (epistaxis *digitorum*) (29). Rhinosinusitis was the second most prevalent cause of epistaxis in the present study. This may be attributed to the fact that children are more predisposed to recurrent respiratory tract infections from very mild changes in weather

conditions (30). Leukemia was the least cause of epistaxis in our study, similar to the report of Makura *et al*. (13). In the study area, full hematological work up is not routinely done in patients with epistaxis except when there is high index of suspicion. However, early haematological evaluation of individuals with epistaxis is indispensable in diagnosing the cause of nose bleed. The haematologic evaluation may initially be as simple as a Full Blood Count, Peripheral Blood Film, and coagulation screening (PT and APTT) to rule out common haematologic disorders that often present with mucosal bleeds such as vWD and symptomatic thrombocytopaenias. It is therefore not surprising that this study couldn't find haematological disorders largely contributing to cause of epistaxis as has been reported by other workers in the literature.

In the present study, first episode nasal bleeds were more than recurrent bleeds, contrary to other reports that found recurrent epistaxis as the most common nature of nose bleeds in children (8,31), and the general population (27). Epistaxis creates anxiety and significant distress in patients and their relatives, compelling them to seek medical intervention (27,32,33). It becomes more bothersome when it affects children. This may account for the high number of first episode presentation. Besides, epistaxis is a symptom of varied clinical conditions (4-6). With increased awareness of health through education, more patients with epistaxis may report to hospitals to rule out any underlying sinister condition. This also may have contributed to the higher number of first episode epistaxis. There was more bilateral epistaxis than unilateral in this study, similar to the report of Makura *et al*. (13) in Alder Hey, Liverpool. It is also similar to Sambo's report (24) in the general population but contradicts other earlier reports (3,27,33). Bilateral epistaxis was more in children in this study because nose-picking, which is the commonest cause of epistaxis in this study, is habitual and can affect either or both nostrils (not necessarily at the same time).

Conclusion

Our study shows a 3.6 % prevalence of epistaxis among children ≤ 12 years in the UDUTH, Nigeria with epistaxis *digitorum* and first episode epistaxis as the most common cause and nature of epistaxis. Children aged 7 – 8 years and males had higher prevalence of epistaxis.

Table 1: Age and gender demographic data of children presenting with epistaxis (n = 39)

	Frequency	Percentage (%)
Age group (years)		
1 – 2	1	2.6
3 – 4	6	15.3
5 – 6	9	23.1
7 – 8	14	35.9
9 – 10	8	20.5
11– 12	1	2.6
TOTAL	**39**	**100**
Gender		
Male	24	61.5
Female	15	38.5
TOTAL	**39**	**100**

Prevalence 3.6 % (39/1087)

Table 2: Causes of epistaxis in children presenting with epistaxis (n=39)

	Frequency	Percentage (%)
Epistaxis *digitorum*	19	48.7
Rhinosinusitis	12	30.8
Trauma	3	7.7
Foreign body	2	5.1
Idiopathic	2	5.1
Leukemia	1	2.6
Total	39	100.0

Table 3: Natureand laterality of epistaxis in children presenting with epistaxis (n=39)

	Frequency	Percentage (%)
Nature		
First Episode	35	89.7
Recurrent	4	10.3
Laterality		
Bilateral	26	66.7
Unilateral (13, 33.3%)		
Left	10	25.6
Right	3	7.7

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