

## Characteristics of Epistaxis Patients at Sanglah General Hospital, Denpasar from January 2015-December 2016

D.S. SARI WULAN<sup>1,2</sup>, L.M. RATNAWATI<sup>2</sup> and I.G.A. DWI SUSANTINI<sup>3</sup>

<sup>1</sup>Doctoral Candidate, Faculty of Medicine, Udayana University.

<sup>2</sup>ENT-HNS Department, Faculty of Medicine Udayana University/Sanglah General Hospital.

<sup>3</sup>ENT-HNS Resident, Faculty of Medicine Udayana University/Sanglah General Hospital.

\*Corresponding author E-mail : [dwi\\_sutanegara@unud.ac.id](mailto:dwi_sutanegara@unud.ac.id)

<http://dx.doi.org/10.13005/bpj/1374>

(Received: January 17, 2018; accepted: March 13, 2018)

### ABSTRACT

Epistaxis is one of the most common emergencies in ENT Department. Incidence of epistaxis varies greatly with age. There is a bimodal distribution with peaks in children and older adult. Epistaxis appears to occur more often in males than in female. Epistaxis is not a disease but a symptom or a manifestation of another disease. Most are mild and can be stopped without medical help whereas severe epistaxis is a disease problem that can be fatal if not treated promptly. The etiology of epistaxis can be divided into local and systemic factors. The principle of treatment is to stop bleeding, prevent complications and prevent recurrent epistaxis. The aim of our study to know the characteristic of patients with epistaxis attending Sanglah General Hospital. A descriptive study, using database of patient with epistaxis attending to Sanglah General Hospital from 1 January 2015 to 31 December 2016. A total of 195 cases of epistaxis were obtained. The maximum number of cases were in the age group of 11-20 years (23.1%). Males were affected more frequently than female. In this study, 125 cases (64,1%) were male and 70 cases (35,9%) female, with a ratio of 1.8 : 1. The most common cause of epistaxis was found to be trauma (34,9%) and followed by hypertension (24,1%). It may be concluded from this study that epistaxis is the most common ENT emergencies, affecting all age group. It has bimodal age presentation and males were affected more than female. The major causes epistaxis are local factors such as trauma leading to systemic factor.

**Keywords:** Epistaxis, Age, Sex, Etiology factors.

### INTRODUCTION

Epistaxis is derived from Greek 'to bleed from the nose'. Epistaxis is one of the most common otolaryngology emergencies.<sup>1</sup> It is common in both children and the elderly, ranging in age from 1-10 years to 50-80 years. Incidence of epistaxis from various studies ranged from 10-15%. Approximately

60% of population is estimated to have had at least one episode of epistaxis in their lifetime, 6% of them seek medical care to treat epistaxis.<sup>2</sup> Incidence of epistaxis in Prof. DR. dr. Kandou General Hospital of Manado during January 2010 - December 2012 is 8,07%. Patient with epistaxis more common in the age group 25-44 years (36.35%). Epistaxis appears to occur more often in males than in females.<sup>3</sup>



This is an Open Access article licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (<https://creativecommons.org/licenses/by-nc-sa/4.0/>), which permits unrestricted Non Commercial use, distribution and reproduction in any medium, provided the original work is properly cited.

Epistaxis can be broadly divided as occurring from anterior or posterior site. Anterior epistaxis is more frequent at an early age. The bleeding originates from the Kiesselbach plexus, usually bleeding may stop spontaneously and easy to overcome. As the bleeding point is easily accessible, this type of epistaxis is rarely serious. Posterior epistaxis is more frequent in the elderly, and they can be a serious problem. The bleeding originates from Wooddruff plexus at the posterior end of the inferior turbinate where the sphenopalatine and posterior pharyngeal artery anastomose. Because of the difficulty in reaching the bleeding point they are much more difficult to manage.<sup>4</sup>

Epistaxis can occur due to various causes. In general, the cause of epistaxis can be local and systemic. Local causes are trauma, foreign body, infection, iatrogenic and neoplasm. Systemic causes include cardiovascular disease, endocrine disorders, systemic infections, hereditary hemorrhagic telangiectasia, hematological disorders and drugs.<sup>4</sup>

Epistaxis is not a disease but rather a symptom or a manifestation of another disease. Most are mild and can stop without medical help whereas severe epistaxis is a disease problem that can be fatal if not treated promptly. Conservative efforts can

be made such as direct pressure on the nostrils, nasal tampon or cauterization. Those efforts can control the bleeding, so surgical intervention is rarely needed. Optimal treatment is necessary to stop bleeding, preventing complications and preventing epistaxis.<sup>3</sup>

The aim of our study is to know the characteristic of epistaxis in Sanglah General Hospital based on age, sex, and etiology factors.

### MATERIALS AND METHOD

This is a descriptive study design. This study represents a 2 years retrospective review (1 January 2015 until 31 December 2016) of record of patient admitted with the diagnosis epistaxis at Sanglah General Hospital, Denpasar.

The study population is all epistaxis patients who come to Sanglah General Hospital from January 2015 until December 2016. The sample is the total population. Inclusion criteria is all of epistaxis patients who come to Emergency Department (ER) and epistaxis patients that consulted from other departments at Sanglah Hospital in the period of 1 January 2015 until 31 December 2016. Exclusion criteria: patients with incomplete medical records

**Table 1: Profile of Epistaxis at Sanglah Hospital on January 2015 - December 2016**

Month	Year				Amount of cases	
	2015		2016		N	%
	N	%	N	%		
January	6	6,2	5	5,0	11	5,6
February	10	10,4	12	12,1	22	11,3
March	9	9,4	7	7,1	16	8,2
April	6	6,2	9	9,1	15	7,8
May	9	9,4	11	11,1	20	10,3
June	9	9,4	14	14,1	23	11,8
July	4	4,2	6	6,1	10	5,1
August	9	9,4	8	8,1	17	8,7
September	9	9,4	6	6,1	15	7,8
October	11	11,4	10	10,1	21	10,8
November	9	9,4	6	6,1	15	7,8
December	5	5,2	5	5,0	10	5,1
Total	96	100	99	100	195	100

that include information about all the variables studied.

of 34.9%, local infection of the nose (9.7%), and neoplasm of the nasal (6.7%) (Table.4)

## RESULTS

The total number of cases epistaxis during this period were 195 cases. (Table.1) Patient varied from 1 to 83 years. Most of the patients were in the group 11-20 years (23,1 %). Minimum numbers of epistaxis were in the group over 70 years (4,1%). (Table.2)

Based on sex, 125 cases of epistaxis or 64.1% were found in male while female were 70 cases or 35.9%. The ratio of male to female is 1.8: 1. (Table.3)

In this study, 100 cases of epistaxis or 51.3% occur due to local factors while the systemic factor is 95 cases 48.7%. From 51.3% of epistaxis cases, trauma was the leading cause of epistaxis

## DISCUSSION

In this study obtained a total of 195 epistaxis cases ranging from age 1 year to 83 years with an average age of 33.9 years. The data shows the two peak cases are age groups less than 20 years and age groups above 50 years. The highest cases is the age group 11-20 years (23.1%), the second highest is 1-10 years (16.9%). The third with 30 cases (15.4%) in the age group 51-60 years. In accordance with study by Bhadouriya, *et al*<sup>6</sup> obtained 100 cases of epistaxis ranged in age from 1-80 years, with an average of 30.44 years. The highest number of epistaxis was found in the age group of 11-20 years (25%) and the age group 41-50 years (19%). Pandey *et al*<sup>6</sup> reported from 45 epistaxis cases obtained two top of the highest number of cases by 20% in each age group of 11-20 years

**Table 2: The Characteristic of Epistaxis at Sanglah Hospital on January 2015 - December 2016 Based on Age**

Age	Year		Year		Amount of cases	
	2015		2016			
	N	%	N	%	N	%
1-10	21	21,9	12	12,1	33	16,9
11-20	23	23,9	22	22,2	45	23,1
21-30	10	10,4	11	11,1	21	10,8
31-40	5	5,2	9	9,1	14	7,2
41-50	11	11,5	11	11,1	22	11,2
51-60	10	10,4	20	20,2	30	15,4
60-70	9	9,4	13	13,1	22	11,3
>70	7	7,3	1	1,1	8	4,1
Total	96	100	99	100	195	100

**Table 3: The Characteristic of Epistaxis at Sanglah Hospital on January 2015 - December 2016 Based on Sex**

Sex	Year		Year		Total	
	2015		2016			
	N	%	N	%	N	%
Male	58	60,4	67	67,7	125	64,1
Female	38	39,6	32	32,3	70	35,9
Total	96	100	99	100	195	100

**Table 4: The Characteristic of Epistaxis at Sanglah Hospital on January 2015 - December 2016 Based on Etiological factors**

Cause	Year				Total	
	2015		2016		N	%
	N	%	N	%		
LOCAL						
Trauma	32	33,3	36	36,4	68	34,9
Rhinitis	13	13,5	6	6,1	19	9,7
Neoplasm of nose & paranasal sinus	4	4,2	9	9,1	13	6,7
SYSTEMIC						
Von Willebrand Disease	2	2,1	1	1,0	3	1,5
Hypertension	25	26,0	22	22,2	47	24,1
ITP	3	3,1	4	4,2	7	3,6
Systemic infection (DHF)	9	9,4	11	11,1	20	10,3
Leukemia	5	5,2	2	2,0	7	3,6
Aplastic Anemia	1	1,0	1	1,0	2	1,0
Hemophilia	1	1,0	3	3,0	4	2,1
Anti-coagulant /Anti Platelet drugs	1	1,0	4	4,2	5	2,6
Total	96	100	99	100	195	100

and 51-60 years. Kumar, *et al*<sup>7</sup> also reported the age group with the most presentations is of 11-20 years age group with 26 cases (26%) while Varshney *et al*<sup>8</sup> reported the highest number of cases occurred in the 41-50 year age group of 36.36%.

Fishpool *et al*<sup>9</sup> reported a progressive increase in epistaxis cases over the age of 40 years. This is due to multifactor such as degenerative progressive changes of the muscle vessels of the tunica media. These changes vary from interstitial fibrosis to scarring. Such changes can lead to the failure of blood vessel contractions resulting in many and long bleeding. Other things that can affect old age are more at risk of epistaxis is the occurrence of arteriosclerosis in the blood vessels, increased problems of hemostatic mechanism, liver and kidney disease, malignancy and increased use of drugs such as anticoagulants and anti platelets. Whereas Misra *et al*<sup>10</sup> causes most epistaxis cases in children and young age by trauma, whether trauma caused

by nose picking, sports trauma, trauma due to violence or accidental trauma.

Based on sex, this study found more epistaxis cases occur in male sex that is as much as 125 cases (64.1%) than female with the number of 70 cases or 35.9% with male to female ratio is 1,8 : 1. This result is not much different from the study by Varsney *et al*<sup>8</sup> were obtained more epistaxis cases in male (57.95%) than female (42.05%) with a ratio of 1.38: 1. Bhadouriya *et al*<sup>6</sup> reported a 3: 1 male and female ratio. Retrieved 75% of epistaxis cases occur in males and the remaining 25% occur in females. Pandey *et al*<sup>6</sup> also reported epistaxis cases in male 3.5 times more than female, 77.8% male and 22.2% in female

Fishpool *et al*<sup>9</sup> states that epistaxis is more common in male because it is associated with factors that cause hypertension, alcoholism and malignancy. It has been suggested that hypertension is the most

common cause of epistaxis and hypertension is more common in male than in female. Then when linked with alcoholism it is argued that male are more likely to consume alcohol than female. While the factor of malignancy or neoplasm in the nose, until now most of the literature mentioned that male more than female.

The cause of epistaxis is multifactorial. Generally divided into two, local factors and systemic factors. In this study, 100 cases of epistaxis or 51.3% occur due to local factors while the systemic factor is 95 cases 48.7%. From 51.3% of epistaxis cases, trauma was the leading cause of epistaxis of 34.9%, local infection of the nose by 9.7%, and nasal neoplasm of the nasal, nasal and nasopharyngeal sinuses by 6.7%. In the Bhadouriya *et al*<sup>6</sup> study, 35% of epistaxis cases were caused by trauma to the nose. Of the 35% of cases, 13% occurred because of hit, 20% due to traffic accidents and 2% of cases by nose picking. Neoplasm of the nose, paranasal sinuses and nasopharynx responsible for epistaxis as much as 13% of cases, while the factors causing acute and chronic infections of the nose responsible for 13% of epistaxis cases. Kumar *et al*<sup>7</sup> also reported trauma results were the most common cause of epistaxis (36%), nasal infections were obtained in 10% of cases whereas neoplasms were present in 6% of epistaxis cases. Pandey *et al*<sup>8</sup> reported 31.11% of cases of epistaxis caused by trauma to the nose, followed by neoplasms as much as 17.78% of cases and inflammatory conditions in the nose as much as 9% of cases.

Epistaxis due to minor trauma such as frequent nose picking can cause ulceration and bleeding in the mucosa of the anterior septum. The formation of a hard crust and the effort to release with the fingers caused a digital trauma. Repeated exposure to crusts causes erosion of the septal mucous membrane and then bleeding. Foreign bodies in the nose can cause local trauma, in nasogastric tubes and nasotracheal tubes that cause trauma to the nasal mucosa. Nasal and facial trauma often cause epistaxis. If bleeding is caused by minimal laceration of the mucosa, usually slight bleeding but severe facial trauma can lead to large bleeding.

Nasal infections and paranasal sinuses such as rhinitis and sinusitis can cause epistaxis.

Infections will cause inflammation that will damage the mucosa. Inflammation will lead to increased permeability of local blood vessels to facilitate bleeding in the nose. Epistaxis associated with neoplasms is often recurrent. Hemangioma and angiofibroma can cause severe epistaxis. Because the tumor occurs abnormal cell growth and the formation of new blood vessels (neovascularization) which is fragile so as to facilitate the occurrence of bleeding.

Among the factors causing systemic, hypertension was the most contributing factor to epistaxis occurrence of 24.1% and was found mostly in the age group 51-60 years, followed by DHF of 10.3%, ITP and leukemia respectively of 3.6% , Von Willebrand Disease at 1.5%, aplastic anemia obtained by 1.0%, hemophilia as much as 2.1% and because the use of anticoagulant / anti platelet drugs was 2.6%. In cases due to ITP, hemophilia and Von Willebrand Disease are most prevalent in the 1-10 year age group. In the Geetha<sup>11</sup> study hypertension was obtained 16.9% with age group at most over 50 years. Bhadouriya, *et al*<sup>6</sup> reported among systemic causes of hypertension responsible for epistaxis by 10%. Most epistaxis with hypertension were in the 45-80 age group. Also reported in addition to hypertension, the use of anti-coagulant drugs and diseases of blood disorders contribute to the occurrence of epistaxis by 2%.

According to Herkner, *et al*<sup>12</sup> there are two hypotheses that explain the occurrence of epistaxis in patients with hypertension i.e. 1) Patients with long-standing hypertension have chronic blood vessel damage. It is at risk of epistaxis especially in the abnormal rise in blood pressure. 2) Epistaxis patients with hypertension have recurrent hemorrhages in the nasal passages that are rich in autonomic innervation of the mid-posterior and intermediate and inferior parts. Also mentioned in the study patients who come to the ER with epistaxis have systolic blood pressure 150-170 mmHg and diastolic pressure 80-90 mmHg and in hypertension stage3 (e"180 / e" 110 mmHg) .

## CONCLUSION

One hundred and fifty-five epistaxis cases were obtained in this study by assessing characteristics related to age, gender, causal factors,

clinical symptoms and treatment. Epistaxis cases in RSUP Sanglah on January 2015 until December 2016 with age distribution obtained average age 33,9 year with ratio of male gender compare to female gender 1,8: 1. Trauma is the most common cause of epistaxis, which is 34.9% with the dominant clinical symptoms that occur in the form of blood discharge in one nostril or unilateral epistaxis (66.7%). Most

epistaksis can stop spontaneously(61%) while epistaxis that can not stop by itself required handling anterior tampon action (36.9%) or posterior tampon (2.1%).

#### ACKNOWLEDGEMENT

Rhinology Division of ENT Department, Sanglah Hospital.

#### REFERENCES

1. Swift AC, Bleier BS, Bhalla RK, Schlosser RJ. *Epistaxis: etiology, investigation and management*. In Rhinology and skull base surgery from lab to the opening room: an evidence based approach. Thieme Medical publisher, New York,USA. 2013.p.507-523
2. Nash CM, Field SMB. *Epidemiology of Epistaxis in Canadian Emergency Department*. In : *Israel Journal of Emergency Medicine*.p.24-28 (2008)
3. Limen, MP ; Palendeng Ora, Tumbel, Ronny. Epistaksis At ENT Policlinic Prof. DR. R.D Kandou General Hospital, Manado Period Januari 2010-Desember 2012. In *Jurnal e-Biomedik* (eBM)1: p. 478-483 (2013).
4. Ballenger JJ. *Anatomy and Physiology of the Nose and Paranasal Sinuses*. In Snow Jr JB, Ballenger J, editors. *Ballenger's Otolaryngology Head and Neck Surgery*. 16<sup>th</sup> ed. Hamilton-London; 2003 : p.547-560.
5. Bhadouriya SS, Raghuvanshi S. *Etiology and Management of Epistaxis- A Prospective Clinical study*. In. *Journal of Clinical & Experimental Otorhinolaryngology*, 2(3):25-30 (2016 ). [Accessed 29 desember 2016], Dhttp://www.scidoc.org/IJCEO.php
6. Pandey,Anil., Gupta, Shubhankur., Rahul, Jain, Khushboo. *Epidemiological Profile of Patients Presenting With Epistaxis at Tertiary Level Hospital in India*, In: *International Journal of Contemporary Medical Research*. 3: 3175-3177 (2016). [Accessed 29 Desember 2016]. <http://www.ijcmr.com>
7. Kumar, Chethan., Bylappa, Kiran. *A Clinical Study of Epistaxis*. In: *International Journal Of Clinical And Diagnosis Research*. 2(4):11 (2014). Accessed 9 Desember 2016. <http://www.ijcdr.net>
8. Varsney,S., Saxena, RK. Epistaxis : a Restropective clinical study. *Indian J Otolaryngol Head Neck Surg*.57(2): 125-129 (2005). [Accessed tanggal 29 Desember 2016]. <https://www.ncbi.nlm.nih.gov>.
9. Fishpool,Sam., Tomkinson, A. *Pattern of hospital admission with epistaxis for 26.725 patients over an 18 year periode in Wales, UK*. In: *Ann R Coll Surg Engl*. 2012; 94:559-562. [Accessed 17 Januari 2017]: <https://www.ncbi.nlm.nih.gov>.
10. Mirsa,*et al*. *Management of pediatric epistaxis in different age group in a tertiary care centre*. In: *International Journal of Contemporary Pediatrics* .2016.;3(4):1206-1209 . [Accessed 17 Januari 2017]: <http://www.ijpediatrics.com>
11. Siddapur,Geetha K., Siddapur, Kishan R. *Clinical Profile of Epistaxis in a Tertiary Health Centre*. In: *International Journal od Innovative Research & Development*.2014.Vol.3(6): 284-9. [Accesed 17 Januari 2017]. <http://www.ijird.com>
12. Herkner H, Havel C, Mullner M, *et al*. Active Epistaxis et ED Presntation is Associated with Arterial Hypertension. *American Journal of Emergency Medicine*. 2009; 20(2): 92-5