

Seasonal Variation in the Incidence of Epistaxis at a High Altitude Area

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Abstract:- Some studies suggest a significant variation in the incidence of primary epistaxis with seasons, while others seems to refute it. Epistaxis being one of the commonest emergencies in ENT warrants research for better prevention and management guidelines. So we conducted a study to know the effect on seasons on the frequency of primary epistaxis cases. The place of study being located at a very high altitude with extremes of cold, dry weather was an ideal natural laboratory for this research.

Of the 500 primary epistaxis cases in the study, 187 (37.4%) cases were recorded in winter in contrast to only 73 (14.6%) cases noted in the summer months. January with 77 (15.4%) cases followed by December with 63 (12.6) cases recorded the majority of cases.

Our study concludes a definite significant correlation between frequency of primary epistaxis cases and seasonal variation of temperature and humidity.

I. INTRODUCTION

Epistaxis is recognised as the one of the most common ENT emergencies worldwide and presents a challenge in resource poor centres where facilities for taking care of such patients are limited. Epistaxis is estimated to occur in 60% of people worldwide during their life time and approximately 6% of these seek medical attention [1]. Several studies have examined the relationship between season, temperature, humidity and the presentation of epistaxis. The majority of these studies have shown a correlation with case frequency and at least one of the above-mentioned meteorological factors, [2-9] but other studies have shown no relationship [11-12]. We conducted this study to know the seasonal variation in the no of epistaxis cases in Kargil which is a place with extremes of cold and low humidity especially in the winter months. Located at an altitude of 2676 meter in the northern part of J&K India, here temperatures in winter often drops to -15 °C with recorded temperatures of -60 °C in the tiny town of Drass, situated 56 km from the Kargil town known as the 2nd coldest inhabited place on earth. Summer months are warmer with temperature ranging between 17.5 to 30°C.

The study was conducted to assess the aetio-pathological profile of epistaxis at a high altitude area and to further know the seasonal variation in no of primary epistaxis cases.

II. METHODOLOGY

A total of 1000 patients attending the department of ENT District Hospital Kargil, during a period of two years from 1stJan 2016 to 31 Dec 2017 were included in the study. Mean daily temperature and precipitation level was obtained from the weather department and recorded. Data was recorded on a predesigned structured proforma. Consent from the patients was taken to be part of the study and ethical clearance was obtained from the institutional ethical committee.

III. OBSERVATIONS AND DISCUSSION

Age(yrs)	No of Pts	Percentage
0-10	30	3
11-20	84	8.4
21-30	87	8.7
31-40	58	5.8
41-50	244	24.4
51-60	319	31.9
61-70	117	11.7
>70	61	6.1

Out of the total 1000 patients we included in the study 687(68.7%) patients were male and 313(31.3%) patients were female which is consistent with studies done by other authors.

Maximum no of patients ie 319(31.9%) were in the age group of 51-60 years followed by 41-50 years ie 244(24.4%) patients and 61-70 years ie 117(11.7%) and so on (table 1).

Cause	No of Patients	Percentage
Primary	504	50.4
Traumatic	211	21.1
Hypertension	86	8.6
Rhinitis/Inflammatory	77	7.7
Septal Angioma	64	6.4
Foreign body	23	2.3
Neoplastic	16	1.6
Iatrogenic	11	1.1
Bleeding diathesis	5	0.5
Drug induced	3	0.3

Commonest treatment modality employed in our study was observation with moisturisation of nasal mucosa with local moisturising drops and antibiotic ointment successfully done in 344 (34.4%) patients followed by AgNo₃ cauterisation of the bleeding area in 267 (26.7%) patients and surgical procedures for neoplastic diseases, traumatic cases & refractory cases in 64 (6.4%) patients as shown in Table 3.

Out of the total 1000 cases enrolled in our study 500 cases of idiopathic epistaxis were further studied for seasonal and monthly variation in the no of cases.

The Commonest cause for epistaxis was primary or idiopathic i.e in 504 (50.4%) patients followed by trauma in 211 (21.1%) patients and Hypertension in 86 (8.6%) patients (table 2).

Treatment Modality	No of Patients	Percentage
Observation with instillation of local moisturising medication	344	34.4
AgNo ₃ cauterisation	267	26.7
Anterior nasal packing	231	23.1
Surgical management for trauma, neoplasm and refractory cases	64	6.4
Posterior nasal packing with gauze or balloon	53	5.3
Removal of foreign bodies	23	2.3
Control of systemic diseases	18	1.8

Months	Temperature			Precipitation	No of Primary Epistaxis Cases	
	Normal	Warmest	Coldest		No	Percentage
January	2.5°C	7.0°C	-2.0°C	6	77	15.4
February	3.8°C	8.2°C	-0.7°C	7	47	9.4
March	8.8°C	14.1°C	3.4°C	10	56	11.2
April	14.2°C	20.5°C	7.9°C	8	43	8.6
May	17.7°C	24.5°C	10.8°C	8	33	6.6
June	22.3°C	29.6°C	14.9°C	5	19	3.8
July	24.1°C	30.1°C	18.1°C	7	24	4.8
August	23.5°C	29.6°C	17.5°C	6	30	6
September	19.8°C	27.4°C	12.1°C	3	31	6.2
October	14.1°C	22.4°C	5.8°C	2	30	6
November	8.1°C	15.1°C	0.9°C	2	47	9.4
December	3.4°C	8.2°C	-1.5°C	5	63	12.6

Maximum no of cases were seen in the month of January with 77 (15.4%) cases followed by December with 63 (12.6) cases, 56 (11.2%) noted in the month of March and 47 (9.4%) cases in February. Min no of cases i.e. 19(3.8) patients were seen in the month of June followed by 24(4.8%) cases in July and 30 (6%) cases noted both in the month of august and October (Table. 4).

Season	No of Cases	Percentage
Winter (Dec-Feb)	187	37.4
Spring (Mar-May)	132	26.4
Summer (Jun-Aug)	73	14.6
Autumn (Sep-Nov)	108	21.6

Significant seasonal variation in no of primary epistaxis cases was seen in our study showing a definite association in cases of primary epistaxis and ambient temperature and humidity. In the winter months 187 (37.4%) cases of primary epistaxis out of the total 500 cases

in the study was recorded in contrast to only 73 (14.6%) cases noted in the summer months (Table. 5).

IV. DISCUSSION

Out of the total 1000 patients we included in the study 687 (68.7%) patients were male and 313 (31.3%) patients were female which is consistent with studies done by other authors. Petruson B et al. studied the frequency of epistaxis in an adult population sample and described that epistaxis was a more common presentation in the male population[13].Maximum no of patients ie 319(31.9%) were in the age group of 51-60 years followed by 41-50 years ie 244(24.4%) patients and 61-70 years ie 117(11.7%) and so on. So in our study most of the patients were above 40 years old which is in agreement with Varshney and Saxena [1], who reported most of their patients to be older than 40 years which correlates with other reports which showed that epistaxis is a geriatric problem and awithEziyi et al [14]. But in contrast to findings by Pallin et al [15] who found a bimodal age-related frequency with peaksamong those younger than 10 years and aged 70-79 years. The reason for this is that in our study most of the epistaxis cases were idiopathic which is mostly seen in adults.

The Commonest cause for epistaxis was primary or idiopathic i.e in 504 (50.4%) patients followed by trauma in 211 (21.1%) patients and Hypertension in 86 (8.6%) patients (table 2). According to the available medical literature, the commonest cause of adulthood epistaxis is idiopathic, which accounts for 70 to 80% of the cases. McGarry GW described the most common cause of adulthood epistaxis as idiopathic.[16] Findings in most western literature, cites idiopathic causes as the commonest, followed by trauma [1, 17-19]

Some studies [10,20,21]show trauma as the most common cause of epistaxis. Hypertension being the third commonest cause in this report shows epistaxis as evidence of poor blood pressure control. This is in keeping with a report from Nigeria of some patients who had epistaxis when their hypertension was not controlled due to cessation of antihypertensive drug therapy [22]. Varsney and Saxena[1] in India recorded hypertension as the second commonest cause of epistaxis after idiopathic causes while Chaiyasate et al [20] in Thailand reported hypertension to be the commonest cause of epistaxis followed by idiopathic causes. The need for regular blood pressure check and compliance to antihypertensive medications must be emphasized.

The reason for primary epistaxis being the most common emergency in our study is that the study population resides at a high altitude area with maximum of dry weather conditions and also the study population being mostly adults.

Commonest treatment modality employed in our study was observation with moisturisation of nasal mucosa with local moisturising drops and antibiotic ointment successfully done in 344 (34.4%) patients followed by AgNo3 cauterisation of the bleeding area in 267 (26.7%) patients and surgical procedures for neoplastic diseases, traumatic cases & refractory cases in 64 (6.4%) patients as shown in Table 3. Kotecha et al., (1996) [23] in his study managed epistaxis by direct control of bleeding point. Tan & Calhoun (1999) [24] in his study used ribbon gauze impregnated with petroleum jelly or BIPP for nasal packing to tamponade the bleeding site

In our study we were able to manage majority of the cases with moisturisation of nasal mucosa with local moisturising drops and antibiotic ointment and observation of the patient. The reason being that in our study most of the cases were idiopathic attributable to the drying and crusting of nasal mucosa due to extremes of weather.

Significant seasonal variation in no of primary epistaxis cases was seen in our study showing a definite association in cases of primary epistaxis and ambient temperature and humidity. In the winter months 187 (37.4%) cases of primary epistaxis out of the total 500 cases in the study was recorded in contrast to only 73 (14.6%) cases noted in the summer months (Table. 5). Watkinson JC et al. in their study found similar seasonal incidence of epistaxis.[25] Nunez DA et al. studied relationship of weather with nose bleeding and opined that admissions were greatest in months of winter.[26]

Several studies have examined the relationship between season, temperature, humidity and the presentation of epistaxis. The majority of these studies have shown a correlation with case frequency and at least one of the above-mentioned meteorological factors, [2-9] but other studies have shown no relationship [10-12].

Possible explanations for the relationship between case presentations according to season and temperature

include increased use of forced air heating and potential increase in the frequency of URTIs (upper respiratory tract infections) during colder times [27]. Some studies have also shown a decrease in coagulation in colder temperatures [28]

V. CONCLUSION

In agreement with many other studies quoted above, we conclude in our study that in a place like Kargil with extremes of weather conditions there definitely lies a significant correlation between season and frequency of primary epistaxis cases. With falling temperature and humidity levels the no of epistaxis cases tends to rise and vice versa. .

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