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Article

Clinical Presentation and Management of Emergency Patients with Epistaxis in Babylon Governorate

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Abstract: Background: Epistaxis, commonly known as nosebleeds, is a frequent cause of emergency visits, affecting individuals of all ages. It is particularly prevalent among populations exposed to specific environmental triggers, such as dry air, which is common in the Babylon Governorate of Iraq. The condition can range from mild, self-limiting bleeding to severe episodes that cause significant discomfort and even hemodynamic instability. Despite its common occurrence, the management of epistaxis remains a clinical challenge, especially in resource-limited settings. Previous studies have identified various etiological factors contributing to epistaxis, including environmental conditions, trauma, and underlying health conditions such as hypertension. However, there is limited data on the clinical presentation and management strategies for epistaxis in the emergency departments (ED) of regional hospitals in Iraq, making it crucial to gather insights into the effectiveness of different treatment modalities in such settings. Methods: A cross-sectional study was conducted involving 60 patients who presented with epistaxis at three major hospitals: Al-Hilla Teaching Hospital, Merjan Teaching Hospital, and Imam Al-Sadiq Teaching Hospital. The data collection process included gathering demographic information, clinical history of epistaxis, and the treatment methods administered during the emergency visit. Results: The analysis of patient demographics revealed a male predominance, with 40 males (67%) and 20 females (33%) in the study sample. The age distribution indicated that the highest number of cases occurred in the 11–20 years age group (27.5%), followed by the 21–29 years group (25%). The mean age for male patients was 23.80 ± 13.55 years, while for females it was 35.30 ± 24.46 years, with a statistically significant difference between the genders ($p = 0.022$). Regarding etiological factors, dry air was the most common trigger for epistaxis, affecting 38% (n=23) of patients, followed by nasal trauma at 25% (n=15), and sneezing at 23% (n=14). Other less frequent causes included the use of anticoagulants (8%) and nose scratching (5%). A higher prevalence of dry air and nasal trauma was observed in younger male patients, particularly within the 11–29 age group. Management strategies showed that conservative interventions, such as manual pressure, were the most commonly used treatment, applied in 62% (n=37) of cases. Anterior nasal packing (ANP) (10%) and intravenous tranexamic acid (IV TXA) (8%) were used in more severe cases, while posterior nasal packing (PNP) (3%) was employed the least. The results emphasize that conservative treatments are highly effective for managing epistaxis, with a minimal need for invasive procedures. Conclusion:This study offers valuable insights into the clinical characteristics and management of epistaxis in Babylon, Iraq. Dry air was identified as a

major environmental factor contributing to the condition, emphasizing the importance of public awareness and preventive measures, such as nasal hydration. Conservative management, particularly manual pressure, was found to be the most effective first-line treatment for epistaxis in this setting. Further research with a larger sample size and longer follow-up periods is essential to assess seasonal variations and enhance clinical guidelines for managing epistaxis in Iraq.

Keywords: Epistaxis, Emergency Department, Dry Air, Nasal Trauma, Conservative Management.

Introduction

Epistaxis refers to bleeding from the nostrils, nasal cavity, or nasopharynx [1] and is one of the most common reasons for emergency visits in otolaryngology [2]. While it is more frequently observed in elderly individuals, it can occur at any age[3]. Over 60% of the U.S. population will experience epistaxis at some point in their lives, with 6% of those individuals seeking medical attention. Depending on the severity, nosebleeds can be costly and significantly impact an individual's quality of life [4]. The prevalence of epistaxis is higher in children under the age of ten and increases again after the age of thirty-five. Although men are slightly more affected than women up until the age of fifty, studies indicate that there is no significant gender difference in the occurrence of epistaxis beyond this age [5]. Risk factors for epistaxis include a history of diabetes, smoking, body mass index, biochemical test results, and seasonal variations [6]. The nose receives its blood supply from both the internal and external carotid arteries through branches that extensively anastomose along the lateral wall, septum, and across the midline. Kiesselbach's plexus, located on the anterior septum, is a common site of hemorrhage, and the area most frequently involved in epistaxis is known as Little's area. In the posterior nasal cavity, the vessels are larger than those in Little's area and can be more easily traced back to their origin in the external or internal carotid arteries [7], [8], [9]. This study aimed to evaluate the clinical presentation, etiological factors, and management methods of epistaxis in emergency patients within Babylon Governorate [10], [11], [12], [13], [14]. The study also sought to analyze the effectiveness of conservative versus invasive interventions in these settings [15], [16], [17], [18], [19], [10].

Materials and Methods

The Study Design :

This study employed a cross-sectional design.

Data setting and collection time :

This is a cross-sectional design conducted at the Emergency Departments of three major medical centers in Babylon Governorate: Al-Hilla Teaching Hospital, Merjan Teaching Hospital, and Imam Al-Sadiq Teaching Hospital. Sixty patients presenting with epistaxis to the emergency units were recruited for the study between 1st October 2025 and February 14th, 2026

2.3 Sample size and sampling method

The study sample comprised 60 patients with epistaxis. All participants were

selected based on predefined inclusion and exclusion criteria, to ensure the

study's reliability and validity.

Upon arrival at the emergency unit, all patients were assessed for hemodynamic stability and airway compromise. In terms of emergency

management, the interventions provided—ranging from manual pressure (pressing) and topical ointments to more intensive measures like Anterior Nasal Packing (ANP), intravenous Tranexamic acid (TXA), or Posterior Nasal Packing (PNP)—were recorded for each patient.

The selection criteria

Inclusion criteria

Patients presenting with epistaxis to the ED.

Patients aged between 3 and 75 years.

Voluntary participation with informed consent.

2.6 Exclusion criteria

Patients aged <3 years or >75 years.

Those who refused to participate or provide consent.

Patients who succumbed to severe epistaxis prior to the initial clinical assessment in the emergency unit.

Data collection methods

Questionnaire

using a structured Epistaxis Patient Questionnaire. Demographic details, including age and gender, were recorded for all cases. A comprehensive clinical history was obtained, focusing on the duration and frequency of bleeding, site of bleeding (unilateral or bilateral), and quantity of blood loss. Potential etiological factors such as dry air, nasal trauma, sneezing, and systemic conditions like hypertension or the use of anticoagulants (e.g., Aspirin) were documented.

Ethical approval ;

All individuals involved in this study were informed, and the agreement was obtained verbally from each one before the collection of samples. This study is

approved by the Committee on Publication Ethics at the College of Medicine, University of Babylon, Iraq.Statistical analysis was performed using Microsoft Excel (LTSC Professional Plus 2021) for data management and jamovi software (Version 2.7.17) for descriptive and analytical statistics. Continuous variables (age) were presented as means ± standard deviation, while categorical variables were expressed as frequencies and percentages. An independent sample t-test was used to compare the mean age between genders, with a p-value < 0.05 considered statistically significant.

Ethical approval for the study was obtained from the Committee on Publication Ethics at the College of Medicine, University of Babylon, Iraq

Ethical considerations: Formal approval was obtained from all participants.

Results and Discussion

The analysis of the patients basis of the demographic profile revealed a total of 60 cases presenting with epistaxis, where a clear male predominance was observed with 40 males (m) (67%) compared to 20 females (f) (33%), Fig. 1. Furthermore, the analysis of the patients basis of age distribution showed that the mean age for M patients was 23.80 ±13.55 years, while it was 35.30 ± 24.46 years for F. Although the F group appeared to have a higher mean age, statistical testing confirmed that this difference was significant (p=0.022), reflecting a relatively comparable Table 1.

The analysis of the patients' basis of etiological factors identified Dry Air as the primary trigger for bleeding, accounting for 38% (n=23) of the study population, followed by Nasal Trauma at 25% (n=15) and Sneezing at 23% (n=14). In

contrast, the analysis of the patients' basis of less frequent causes showed that Anticoagulant use and nose scratching represented only 8% and 5% of cases, respectively. It was also observed that traumatic and environmental factors like dry air were more prevalent among younger M Fig 2.

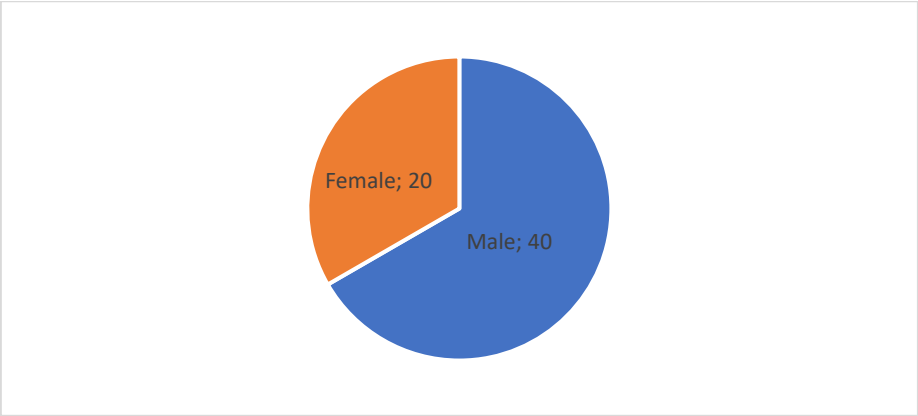


Figure 1. Gender distribution of epistaxis.

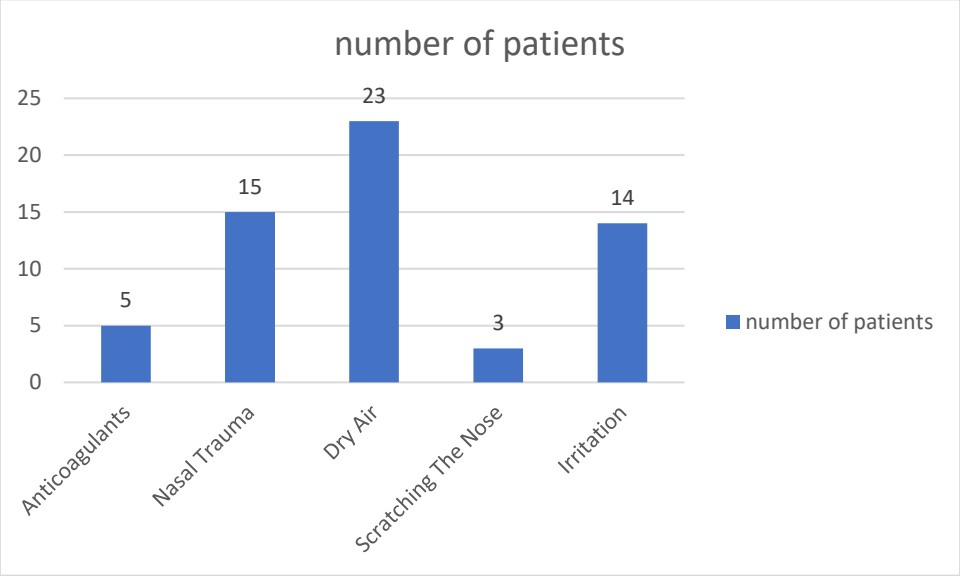


Figure 2. Etiological profile of patients with epistaxis.

Table 1. Gender with the age distribution of the studied cases.

Age group	Males No of patients	percentage	Females No of patients	percentage
3 -10 years	8	17.50	1	1.67
11 - 20	11	27.50	8	13.33
21 - 29	10	25.00	2	3.33
30 - 39	7	20.00	1	1.67
40 - 49	2	5.00	2	3.33
50- 59	2	5.00	0	0.00
60 - 69	0	0.00	4	6.67
70 - 75	0	0.00	2	3.33
Total	40	66.67	20	33.33
Mean age (years) 23.80 ± 13.55			35.30 ± 24.46	

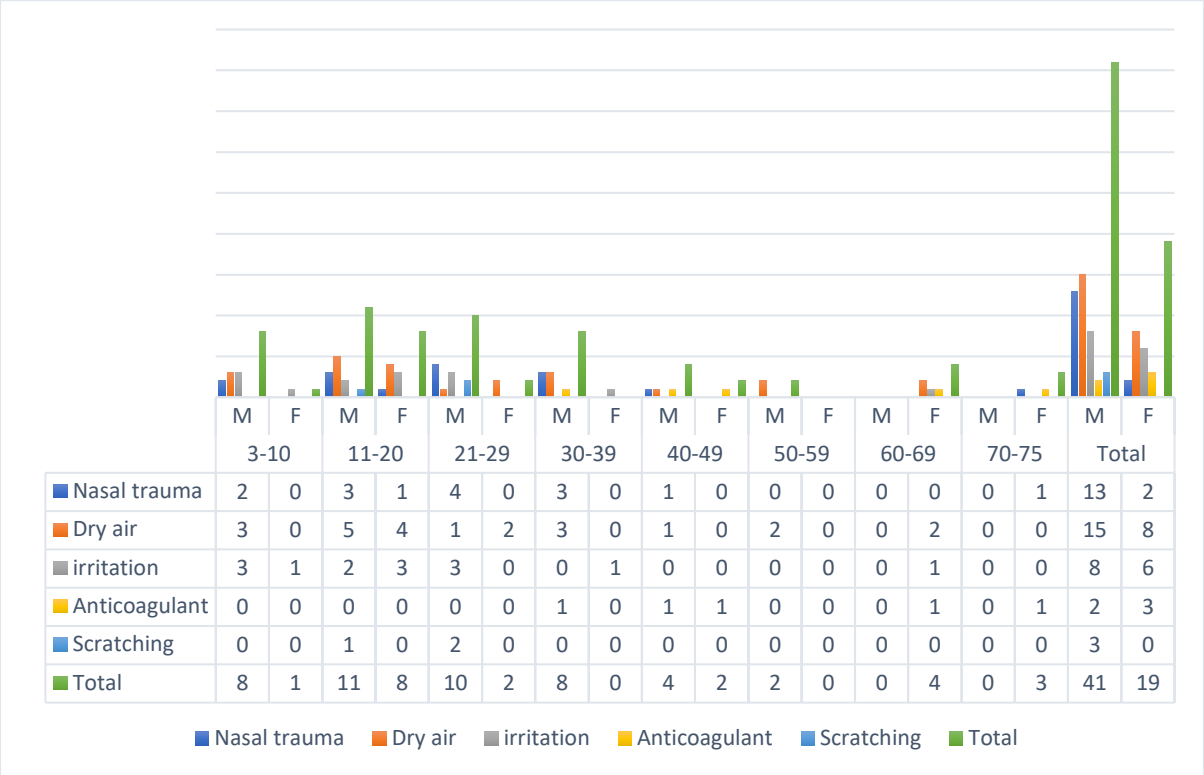
P = 0.022 (significant).

The analysis of patients on the basis of age and gender-wise distribution of etiological causes showed that in the 11–20 age group, Dry Air was a prominent trigger affecting 5 males and 4 females.

Among patients between the ages of 21 and 29 years, the most common cause identified was Nasal Trauma, which was seen in 4 (6.67%) cases. In the 3–10 age category, the

Analysis of patients on the basis of etiology revealed that Sneezing and Dry Air were equally frequent in males, each occurring in 3 cases.

Furthermore, the analysis of patients on the basis of systemic factors indicated that Anticoagulant use was exclusively observed in older age groups, specifically in patients above 30 years, with a total of 5 cases (8.33%) distributed across both genders. Among patients aged 60–75 years, the most frequent cause for females was Dry Air and Anticoagulant use, whereas males in this demographic showed fewer recorded triggers.



	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	3-10		11-20		21-29		30-39		40-49		50-59		60-69		70-75		Total	
Nasal trauma	2	0	3	1	4	0	3	0	1	0	0	0	0	0	0	1	13	2
Dry air	3	0	5	4	1	2	3	0	1	0	2	0	0	2	0	0	15	8
irritation	3	1	2	3	3	0	0	1	0	0	0	0	0	1	0	0	8	6
Anticoagulant	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	1	2	3
Scratching	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0
Total	8	1	11	8	10	2	8	0	4	2	2	0	0	4	0	3	41	19

Figure 3. Etiology of epistaxis across different age groups and genders.

The analysis of patients on the basis of behavioral triggers showed that Nose Scratching was restricted to males in the younger age brackets (11–29 years), accounting for 5% of the total sample, as shown in Fig 3. Finally, the analysis of the patients' basis of emergency management demonstrated that conservative interventions were highly effective, with manual pressure (pressing) being the most utilized method in 62% (n=37) of cases. The analysis of the patients' basis of advanced procedures indicated a lower requirement for invasive measures, as (ANP) was performed in 10% of patients, (TXA IV) was administered in 8%, and (PNP) was required in only 3% of the total sample Fig 4.

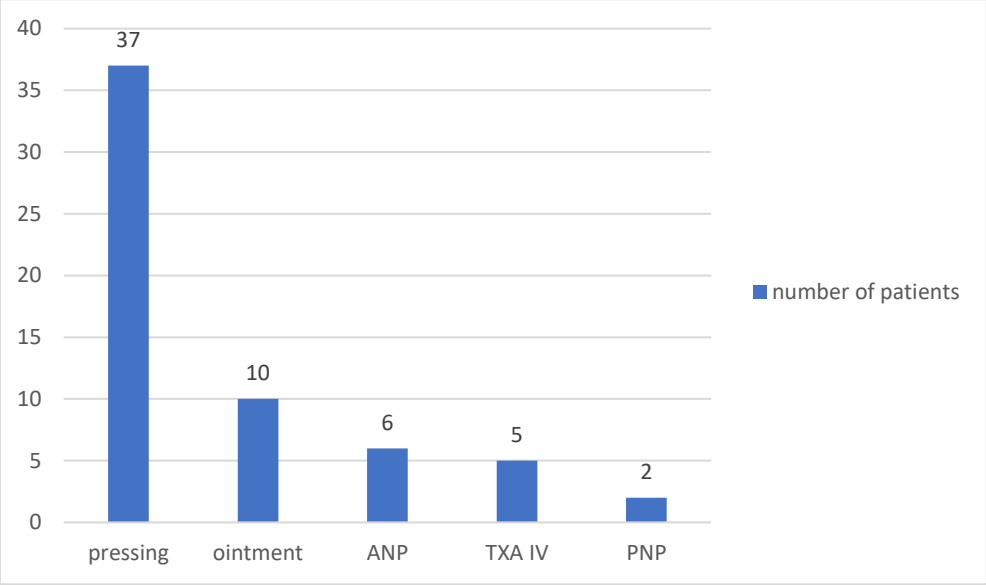


Figure 4. Management of cases with epistaxis.

Epistaxis remains one of the most common emergencies in otorhinolaryngology [21], [22], [23], [24], [25]. Epistaxis generally is of mild intensity and usually responds to conservative management; however, in some cases, it may be severe enough to cause hemodynamic instability such as hypotension and tachycardia, progressing toward shock if proper intervention is not done in time [26], [27], [28], [29], [30], [31]. Treating the underlying cause, such as hypertension, bleeding disorder, or coagulation defect, is as important as undertaking local measures such as ANP or cauterization for control of bleeding [32], [33].

Demographic and Statistical Analysis

Our study demonstrated a clear male preponderance (66.67%), with a M-to-F ratio of 2:1. This finding is consistent with the results reported in recent literature This male preponderance may be due to their more active lifestyle, as young males are more vulnerable to violent activities, engage in high-risk-taking play, and fall from height with resultant maxillofacial trauma/injuries [33], [34], [35]

Most of the patients seen in this study were aged (11-20) (27.5%) and (21-29) (25%) the high prevalence was (11-20) may be due to their very active life and more likely to be involved in nasal trauma, while the second peak at the fourth, sixth decade may be due to increased incidence of hypertension-agreement with the finding result reported in literature [35]. among those between in our cohort, the mean age was 23.80 ± 13.55 years for M and 35.30 ± 24.46 years for S. Statistical analysis revealed that the difference in mean age between genders was statistically significant ($p = 0.022$). This aligns with international findings where no significant age difference between sexes was found ($p = 0.2710$), suggesting that while gender affects frequency, it does not necessarily dictate the age of presentation [33].

Etiological Factors and Environmental Impact

Regarding etiology, Dry Air was identified as the leading factor (38.3%), followed by Nasal Trauma (25%). The high prevalence of climate-induced epistaxis in Babylon relates to regional environmental conditions, as mucosal desiccation is a well-documented trigger for bleeding in modern literature [36], [37]. These results contrast with some international studies where , Hypertension causes arteriosclerotic changes in blood vessels and has been significantly associated with active epistaxis at ED presentation [38].) as well as recurrent visits to ED for epistaxis [39]. highlighting the importance of regional climate considerations in managing ear nose throat emergencies. a previous study performed in Korea indicated that temperature, wind speed, and relative humidity were associated with epistaxis; however, age was not considered in that study [40]. The current study identifies Dry Air

as a predominant etiological factor for epistaxis, accounting for 23 total cases. A significant age-related trend was observed, with the highest incidence occurring in the 11–20 age group (9 cases), followed by the 3–10 age group. These findings strongly align with recent meteorological research, which states that the association between weather factors and epistaxis varies by age. Humidity and wind speed are highlighted as "significant factors" specifically for the pediatric and adolescent groups (0–18 years). This is further explained by the fact that younger individuals typically have a longer outdoor duration, leading to increased exposure to environmental desiccants compared to older populations. From an anatomical standpoint, the impact of dry air is localized at Kiesselbach's Plexus (Little's Area)low humidity leads to the rapid evaporation of the mucosal blanket, causing dehydration of the nasal mucosa. This increases mucosal friability, making the superficial vessels prone to spontaneous rupture [41]. Management Outcomes In terms of management, 78.3% of our patients responded successfully to conservative methods, primarily manual pressing and topical ointments. This high efficacy rate is strongly supported by recent clinical protocols [35]. In a literature study, we found that anterior epistaxis was more common than posterior (73.3% vs 26.7%). Anterior epistaxis arises of damage to Kesselbachs plexus at lower part of anterior nasal septum. Posterior epistaxis arises from damage to posterior nasal septal artery However, severe cases may require further management like nasal packing, or cauterization of the bleeding point. Drug therapies such as IV TXA There is a hypothesis that TXA could be a particularly effective treatment for oropharyngeal bleeding due to the high concentration of plasminogen and low concentration of intrinsic plasminogen inhibitors that are present in saliva.

Extrapolating this route, the hypothesis is that combined topical and IV TXA treatment could be useful in rhino-pharyngeal hemorrhages. The combined use of topical and IV TXA provided the best surgical field assessment using a five-point Boezaart scale . TXA's effectiveness in hemorrhage control. Age is another crucial factor. Older patients, often with varying comorbidities and on multiple medications, might respond differently to TXA [38]. (TXA, first synthesized in 1962), is an anti-fibrinolytic agent which has been included into treatment algorithms of multiple surgical specialties where significant bleeding can occur.

This synthetic antifibrinolytic drug has a mechanism of action that interferes with the coagulation cascade by blocking the formation of plasmin and stabilizing the formed platelet plaques. This is the consequence of the fact that TXA is a synthetic analogue of the amino acid lysine, which binds and competitively blocks plasminogen molecules, and thus decreases the degradation of already formed plaques.

TXA can be administered orally or intravenously, having an oral bioavailability of 30–50% and a half-life of 2–3 h. It can also be applied locally, acting on the mucosa and blood supply where it is placed in the last decade, aerosol application of TXA in anatomically sequestered areas, such as the lungs and posterior nasal cavity, has been explored. It has been hypothesized that TXA may be particularly effective for management of oropharyngeal bleeding because of the relatively high concentration of plasminogen and low concentration of intrinsic plasminogen inhibitors found in saliva. There is a source of concern regarding prescription of TXA because of the theoretical possibility of an increased risk of thromboembolic event, but recent studies have suggested that such concerns may not necessarily be justified. This is have been found to minimize initial bleeding, prevent epistaxis recurrence, and reduce the need for further interventions Nasal packs such as EPAP (Merocel®) have a high rate of success (>90%) in managing recurrent bleeding.

Furthermore, the safety and success of non-invasive emergency interventions are reaffirmed by findings advocating for conservative measures as the first-line treatment to reduce complications and hospital stay [35].

Conclusion

Epistaxis in Babylon significantly affects males more than females (2:1 ratio), with no statistically significant correlation between age and gender ($p = 0.022$),

Dry Air is the most frequent etiological trigger (38.3%) in the study population, reflecting the impact of regional environmental factors.

Conservative management remains highly effective as a first-line therapy, achieving a success rate of 78.3% in emergency presentations.

Study Limitations

While this study provides valuable insights into the etiological factors of epistaxis, several limitations should be acknowledged:

Geographical and Meteorological Scope: This study was conducted in a specific geographic location. Since meteorological variables such as humidity and temperature vary significantly across different regions, these findings regarding "Dry Air" may not be directly applicable to areas with different climatic conditions.

Sample Size and Study Duration: The analysis is based on a sample of 60 cases collected over a specific period. A larger sample size spanning multiple seasons or years would allow for a more robust statistical assessment of how seasonal transitions impact epistaxis incidence.

Self-Reporting and Recall Bias: Causes such as "Nasal Trauma" and "Scratching" were identified based on self-reporting from patients or their guardians. This introduces the possibility of recall bias, particularly in pediatric cases where the exact trigger of the bleeding may not be accurately remembered.

Unquantified Confounding Factors: While "outdoor duration" is considered a logical link between age and weather exposure, this study did not directly measure or quantify the specific number of hours each patient spent outdoors prior to the event.

Recommendations

Public awareness and prevention: since dry air is the most common etiological factor for epistaxis in the Babylon region, Clinical guidelines should advise on nasal hydration, including lubricants and humidifiers, to prevent dry air-induced epistaxis

Standardize non-invasive conservative methods as the first-line treatment in emergency settings to optimize patient outcomes and reduce the need for invasive nasal packing

Future Research: Conduct multi-center longitudinal studies to further explore the correlation between seasonal weather patterns and the incidence of epistaxis in Iraq.

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