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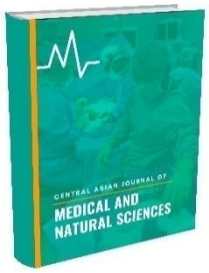

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Analysis of the Results of Treatment of Anterior Nosebleeds

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Abstract: Epistaxis is an extremely common otorhinolaryngology problem, accounting for approximately 1 in 200 emergency department visits [1]. Although it is difficult to accurately estimate, it has been estimated that 60% of the population will have at least 1 episode of nosebleeds in their lifetime, of which 6% seek medical attention [2]. The very frequency of nosebleeds makes it an important condition in terms of cost, time and resource management. Thus, it is important to determine the most effective and minimally invasive treatment method.

Key words: epistaxis, treatment, anterior epistaxis, tertiary care, emergency department.

The literature describes many methods and algorithms for the treatment of nosebleeds [3]. Most approaches describe initiating tamponade and nasal pressure and moving on to more invasive and labor-intensive treatments if that fails. For anterior epistaxis, there is evidence for the use of chemical cauterization [10], anterior tamponade [5], and other hemostatic matrices [4]. All of these methods have been shown to have good efficacy in achieving hemostasis. However, there is not enough literature evaluating these methods and their effectiveness when used in emergency care. In addition, there are currently no generally accepted treatment recommendations, and the choice of treatment is a matter of preference for the individual emergency room physician.

Given that anterior nosebleeds are a very common and treatable condition, it is important to optimize efficiency and effectiveness in the treatment of this disorder.

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The aim of our study was to evaluate the current methods used in emergency centers for the treatment of anterior nosebleeds.

Material and research methods:

This study included adult patients with a primary diagnosis of epistaxis in the emergency department. The records were identified by the Medical Records Department using the ICD-10 epistaxis code. Epistaxis codes do not distinguish between anterior and posterior epistaxis; thus, all records were reviewed manually and patients diagnosed with posterior epistaxis or simultaneous anterior and posterior epistaxis were excluded.

Patient demographics, comorbidities, treatments used, course of care in the emergency department, hospitalization, information about relapses or follow-up were studied. Treatment options included conservative treatment (no treatment), nasal clamp, petroleum gauze packing, plugging, silver nitrate cautery, electrocoagulation, endoscopic surgery, and arterial embolization and other treatments.

For each treatment modality, success was defined as the number of patients diagnosed with anterior nosebleeds who received treatment and did not relapse within 14 days after the initial admission date [6]. Follow-up was defined as patients who were given a specific treatment and who were subsequently registered and received follow-up care in the emergency department, either to remove a swab or to check for a nosebleed site. For patients requiring inpatient hospitalization, the duration and reason for hospitalization were recorded.

All statistical calculations were carried out using SAS (version 9.3). Categorical variables were summed using frequency and percentage counts, while continuous variables were summed using mean (SD) or median (IQR), as appropriate. When necessary, initial testing for relationships between categorical variables was performed using a chi-square test or Fisher's exact test. Modeling of categorical outcomes was performed using logistic regression.

Results: In total, from January 2020 to May 2022, there were 419 emergency department visits with a primary diagnosis of epistaxis. A total of 353 cases of anterior nosebleeds were included in this study; Demographics and comorbidities are shown in the table.1. The people included in this study had an average age of 70 and 49% were women. The majority (61%) of patients were taking some form of anticoagulant or antiplatelet drug. Of the reported comorbidities, arterial hypertension, diabetes mellitus, coronary artery disease, atrial fibrillation did not have a statistically significant effect on treatment failure ($p > 0.05$).

Table 1. Patient demographics

Characteristic	Value
Mean age y (range)	70 (14–97)
no gender. (%)	
Male	180 (51)
female	173 (49)
Comorbidities N (%)	
Hypertension	198 (56)
Diabetes	67 (19)
CAD a	97 (28)
Atrial fibrillation b	94 (27)
HHT with	3 (1)
Other blood diseases	12 (3)
AC/AP d drug use	217 (62)

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Overall, the overall initial treatment failure rate was 26% (91 patients), and a total of 26.6% (94 patients) went to the emergency department for routine follow-up after discharge from the emergency department. Of the patients requiring follow-up, 89 (95%) presented for tampon removal (53 patients used a Galena Spon tampon), 3 (3.1%) patients had a tampon left in place at a follow-up visit, and 2 (2.1%) the patient was present at the follow-up visit despite their packaging falling out by itself prior to the appointment. Of 94 patients requiring follow-up, 22 (23%) required further intervention (10 Galena Spon tamponade patients) for epistaxis during tampon removal. There was no difference in bleeding rates after tampon removal between different types of tampon.

Table 2. The results of the treatment of anterior nosebleeds

Care	H (%)	Failure N (%)
Silver nitrate	122 (35)	24 (20)
Merosel	92 (26)	24 (26)
Without treatment	54 (15)	11 (20)
Other packaging	45 (13)	19 (42)
Other b	23 (6)	3 (13)
Nose clip	17 (5)	10 (59)

When silver nitrate was compared with a petroleum gauze pad, those in the silver nitrate group were less likely to fail (OR 0.335, 95% CI 0.160–0.703, p = 0.0038). When comparing silver nitrate with the Galena Spon Hemostatic Sponge, the recurrence rate was lower than with silver nitrate.

In evaluating potential risk factors for epistaxis, anticoagulant therapy was determined by patient characteristics. Overall, 61% of patients were taking at least one antiplatelet or anticoagulant drug. Of those not taking any anticoagulants or antiplatelet drugs, the failure rate for treatment of anterior nosebleeds was 18%. In contrast, those taking any anticoagulant/antiplatelet drug had a 30% failure rate. A statistically significant association was found between the use of anticoagulants/antiplatelet drugs and recurrent epistaxis (p = 0.0119). 73% of all failed patients were taking at least one antiplatelet or anticoagulant drug.

A total of 353 cases of anterior nosebleeds were analyzed in this study for the outcome of treatment received in the emergency department. Cauterization with silver nitrate was the most popular method, accounting for 35% of initial treatment. However, the treatment of anterior nosebleeds has proven to be quite variable with Galena Spon, gauze / other swab, or nose clip. Treatment of epistaxis, as with any disease, must be adapted to the patient and the clinical situation [8]. In this study, the majority of patients with anterior nosebleeds were successfully treated with silver nitrate cauterization or Galena Spon tamponade, which are the most commonly used methods. Silver nitrate has been particularly helpful as it has shown promising results in terms of treatment success without the need for follow-up. However, in these cases, the site of bleeding was identified during anterior rhinoscopy and was amenable to cauterization with silver nitrate. This is in line with other studies which have shown that when the source of epistaxis bleeding is identified, chemical cautery has excellent success in treating anterior epistaxis.

In our study, it was found that taking any anticoagulant or antiplatelet agent, including ASA, significantly increased the likelihood of relapse after discharge from the emergency department (p = 0.0106). The treatment failure rate for any anticoagulant/antiplatelet agent was 30%, for ASA alone it was 33%, and for the other regimen it was 29%, which was significantly higher than the 18% treatment failure rate seen in individuals who have not taken such drugs. therapy (p < 0.0119).

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Conclusions:

Thus, modern methods of treatment of anterior nosebleeds in the emergency department are quite diverse. Many modalities are currently in use and there is still no generally accepted evidence-based recommendation to guide treatment decisions. Looking at the four most common methods used to treat anterior nosebleeds in the emergency department from this study, the use of silver nitrate appears to be an effective treatment option given the time and resources used for any other method that requires the patient to return to the emergency department. ED. This suggests that if an anterior bleeding site is identified, it is likely to be amenable to chemical cauterization and silver nitrate should be the first line treatment. However, due to study limitations and the lack of a scoring system to determine the severity of epistaxis, it is currently not possible to recommend silver nitrate cauterization in all cases of anterior epistaxis. Further research is needed to determine the most effective treatment based on the severity of epistaxis.

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