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Original Research

Evaluation of the Management in the Epistaxis cases in a Reference Hospital in the South of Brazil

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Abstract

Introduction: Epistaxis is defined as bleeding from the nasal mucosa. It is estimated that at least 60% of adults have already had an episode of epistaxis, being more common in men.

Objective: Analyze the management (therapy) and epidemiological profile of patients admitted to Hospital Nossa Senhora da Conceição (HNSC) in Tubarão, Santa Catarina, Brazil.

Methods: Cross-sectional study that included HNSC patients with complaints of epistaxis in the period from 2010 to 2017. Data were obtained from medical records of the TASY software and inserted in a collection instrument structured by the researchers.

Results: Study with 704 patients, 290 women and 414 men, with an average age of 44.6 years. It was observed that 49.7% of them had some comorbidity, and that of these, 5.1% used inhibitors of platelet aggregation and 2.3% anticoagulants. Still, 30% of the patients presented hypertensive crisis associated with epistaxis, being more common over 60 years of age ($p < 0.001$). During the study it was observed that the majority of cases occurred in winter (32.9%), and that most patients (86.1%) were not submitted to hospitalization. Regarding medical care, only 20.7% needed the care of an otolaryngologist. Complementary exams were also performed in the minority (31.7%). Patients over 60 years of age were those who most used the tampon as a therapeutic option. On the other hand, cauterization was more chosen between the ages of 20 and 59 and the only ligation was also performed in this age group. Finally, expectant management was superior in individuals under 12 years old. Recurrence was observed in 31.3% of patients regardless of the management chosen.

Discussion: Epistaxis is more common in men and in cold climates. It has a multifactorial etiology and usually originates in the Kisselbach plexus. Most of them are usually benign and self-limited, not requiring hospitalization, complementary exams or surgical procedures, such as surgical ligation and electrical cauterization.

Conclusion: The most used management was nasal packing followed by the expectant, cauterization and ligation respectively.

INTRODUCTION

Bleeding from the nasal mucosa is called epistaxis [1]. Epistaxis is a frequent complaint and affects about 10 to 12% of the population. About 6% of those affected seek medical help. Of these, approximately 1% of affected people does not respond to traditional therapy and require a surgical procedure [2]. It usually occurs more in males than in females [3], this may be due to the fact that men practice more sports and other outdoor activities [4].

A number of factors can trigger epistaxis such as coagulation abnormalities, medication use, trauma and systemic diseases such as liver cirrhosis and systemic arterial hypertension. If there is no identified etiology, it is characterized as idiopathic [5]. Unilateral epistaxis is often associated with nasal obstruction and may point to a neoplastic cause [6]. There seems to be a climatic relationship, as cases of nosebleed tend to occur more during the winter months or in regions with a hot and dry climate [7].

Nasal anatomy is extremely important in the pathology of epistaxis. Anatomically, the nasal cavity is composed of the nasal septum in the medial region and the turbinates in the lateral region. The nasal cavities have a rich vascularization, which comes from branches of the internal and external carotid artery. From the internal carotid artery are the branches of the ophthalmic artery, the anterior and posterior ethmoidal arteries,

which supply the septal cartilage, the nasal bones and portions of the roof and side walls of the nose. In turn, the external carotid artery has as terminal branches the posterior lateral nasal artery and the septal artery, which are branches of the sphenopalatine (maxillary) artery. In the anterior region of the nasal septum there is the Kisselbach plexus or Little's area, which consists in the anastomoses of the internal carotid (anterior ethmoidal) and external carotid (a. Sphenopalatine). The Kisselbach plexus is extremely notorious, as it covers the entire anterior segment of the nasal cavities, and it is precisely in this region where bleeding occurs the most. On the other hand, the bleeding of posterior origin arises from the posterior nasal concavity, essentially through the branches of the sphenopalatine artery, where there is the Woodruff area. Hemorrhages in this region provide a higher risk of aspiration and are more difficult to control [8-11].

Usually, the management of epistaxis is divided into containing hemorrhage and, in a secondary way, identifying and treating the bleeding etiology [12]. The nosebleeds intervention is initially clinical, and requires a structured analysis of the patient by anamnesis, physical examination and coagulation tests [13]. Approximately 90% of the anterior epistaxis has resolution with consistent compression in both nostrils over the alar cartilages or with tampon with anesthetic and vasoconstrictor solution. When there is identified the local of bleed, electrical or chemical cauterization (silver nitrate or trichloroacetic acid) can be performed. In case of heavy bleeding, anteroposterior packing is recommended, which should remain for 3 to 5 days [14]. In severe cases, ligation or embolization of bleeding vessels may also be performed [15].

The study in question, carried out at Hospital Nossa Senhora da Conceição in Tubarão, Santa Catarina, Brazil had as its main objective the evaluation of their management and recurrence in the various cases of epistaxis. In addition, the epidemiological profile of patients was defined and analyzed. Thus, it is possible to evidence the most prevalent therapeutic choice in each age group and the success rate among the options of choice.

METHODS

The study is observational with a cross-sectional design. The study population consisted of patients admitted to the Hospital Nossa Senhora da Conceição in Tubarão, Santa Catarina, Brazil, with complaints of epistaxis in the years 2010 to 2017.

The research population was chosen through the medical records provided by the hospital's information technology (IT) based on the ICD's R04 and R04.0, with data obtained through the Philips TASY electronic medical record software. The collection of medical record data was performed only by the researchers through a questionnaire created by them especially for this study.

The questionnaire had 17 variables established. They were divided into the number of medical records, age, origin, sex, race, comorbidities, smoking, drinking and use of medications. The type of epistaxis, cause, bleeding management, recurrence, attending physician, requested tests, days of hospitalization and month in which the case occurred was still assessed.

The study followed the guidelines and regulatory standards for research involving human beings, proposed by the Resolution of the National Health Council No. 466/2012 and 510/2016, and was approved by the Research Ethics Committee of the Universidade do Sul de Santa Catarina, under opinion number 2,845,957, dated August 27, 2018.

The collected data were organized in the Microsoft Excel program and the data analysis was complemented in the SPSS version 20.0 program. The quantitative variables were described with measures of central tendency and dispersion of the data, and the qualitative variables in absolute numbers (n) and proportions (%). To check the association of the variables of interest, the chi-square test (x2) was applied. The confidence interval adopted was 95% and the level of significance was p <5%

RESULTS

The final sample consisted of 704 patients admitted to the Hospital Nossa Senhora da Conceição in Tubarão, in the state of Santa Catarina, Brazil (Table 1). The majority of the study population was men, totaling 58.8% (414), and the average age of patients was 44.6 years. During the study it was observed that the majority of patients, 86.1% (606), were not submitted to hospitalization. Regarding medical care, only 20.7% (146), needed an otolaryngologist.

Patients over 60 years of age were those with the highest number of epistaxis cases related to the hypertensive crisis (p <0.001).

Several comorbidities were also observed during the study,

Table 1: Epidemiological profile of patients with epistaxis, 2010-2017. Tubarão, Brazil.

Variable	Frequency (n)	Percent (%)
Gender		
Female	290	41,2
Male	414	58,8
Age		
0-12	96	13,6
12-19	47	6,7
20-59	315	45,3
>60	240	34,4
Origin		
Tubarão	474	67,3
Others cities	230	32,7
Comorbidities		
Yes	350	49,7
No	354	50,3
Medication use		
Yes	173	24,6
No	531	75,4
Nicotin use		
Yes	100	14,2
No	604	85,8
Alcohol use		
Sim	30	4,3
Não	674	95,7
Skin color		
White	651	92,5
Black	29	4,1
Pardo	24	3,4
Total	**704**	**100%**

with a greater number of cardiovascular ones found in 38.8% (273), and endocrinological ones, found in 10.5% (73). In addition, 24.6% (173), patients declared the use of some continuous medication, of which 18.2% (128), used some antihypertensive medication. Still, 5.1% (36), used platelet aggregation inhibitors and 2.3% [16], using anticoagulants (Table 2).

The age group above 60 years old was the one that used the tampon the most as a therapeutic option (Table 3). On the other hand, the age group from 20 to 59 years old was the one that performed the most cauterization and in patients up to 12 years old, expectant management was the most chosen. Of the 704 patients analyzed, 31.3% (220), had a recurrence of epistaxis regardless of the management chosen (Table 4).

Of the patients seen, only 31.7% (223), had requested tests. Of these, 24.9 (175), underwent complete blood count and coagulation tests (TAP, KPTT), and 8.4% (59), underwent imaging tests.

The season with the most cases was winter with 232 (32.9%), cases. Subsequently, spring, with 187 (26.5%), autumn with 156 (22.2%), and summer with 129 (18.4%) (Figure 1).

DISCUSSION

According to the epidemiological profile of the patients in this research, it was shown that the majority were male (58.8%), the same occurred in the study by Dal Secchi et al. [16], And in the African study by Gilyoma et al. [17], There are hypotheses that the lowest number of cases in women occurs due to the pre-menopausal hormonal pattern, since after 50 years the rates tend to equalize between the sexes as shown in the study by Tomkinson et al. [18]. In this study, most of the sample was adults (over 20 years old), totaling 79.7% of the cases, and of these, 34.4% were over 60 years old. The mean age was 44.6 years, 12 years more than that indicated in the study by Gilyoma et al. [17],Where the established average was 32.2 years. In the 2010 Brazilian Institute of Geography and Statistics (IBGE), census in Tubarão [19], of the 97,235 inhabitants, 88,013 (90.5%), declared themselves to be white. The present study found the majority of cases in patients of Caucasian ethnicity (92.5%), probably because they make up the majority of the city's population.

The study also pointed out that 49.7% of individuals had some comorbidity. There was an emphasis on cardiovascular causes (38.8%), and endocrinological causes (10.5%). The same occurred in the Canadian study by Newton et al. [20], In which a total of 353 patients, most of them had some type of cardiovascular or endocrinological comorbidity, 56% of whom were hypertensive, 28% had coronary artery disease and 19% had diabetes. In this research, patients who used continuous medications were also evaluated, having found that of the 704 patients, only 2.3% declared use of anticoagulants and 5.1%

Table 2: Age group in relation to the cause of epistaxis, 2010 - 2017. Tubarão, Brazil.

Cause	0 a 12a (n-%)	12 a 19a (n-%)	20 a 59a (n-%)	>60a (n-%)	p value
Hypertensive crisis	1 (1,0)	1 (2,1)	75(23,5)	134 (55,4)	**p<0,001**
Trauma	20 (20,8)	5 (10,6)	31 (9,7)	13(5,4)	**p<0,001**
Drug induced	0 (0)	0 (0)	4 (1,3)	2 (0,8)	p=0,606
Postoperative	5 (5,2)	5 (10,6)	28 (8,8)	11 (4,5)	p=0,155
Sistemic diseases	5 (5,2)	1 (2,1)	4 (1,3)	4 (1,7)	p=0,105
VAS / ENT diseases*	7 (7,3)	2 (4,3)	14 (4,4)	6 (2,5)	p=0,245
Not specified	59 (61,5)	32 (68,1)	162 (50,8)	78(32,2)	**p<0,001**

* Diseases of the upper airway and otolaryngology

Table 3: Management of epistaxis in relation to the age group, 2010-2017. Tubarão, Brazil.

Management	0 a 12a (n - %)	12 a 19a (n - %)	20 a 59a (n - %)	>60 (n -%)
Nasal packing	*26 (27,1)*	14 (29,8)	132 (41,4)	153 (63,2)
Surgical ligation	*0 (0)*	0 (0)	1(100)	0 (0)
Cauterization	*7 (7,3)*	7 (14,9)	47 (14,7)	24 (9,9)
Expectant	*63 (65,6)*	26 (55,3)	139 (43,6)	65 (26,9)
Total	**96 (13,6)**	**47 (6,7)**	**319 (45,3)**	**242 (34,4)**

***p<0,001**

Table 4: Management of epistaxis in relation to recurrence, 2010-2017. Tubarão, Brazil.

Management	Frequence (n-%)	Recurrence (n - %)
Nasal Packing	325 (46,2)	130 (59,1)
Surgical ligation	1 (0,1)	0 (0)
Cauterization	85 (12,1)	30(13,6)
Expectant	293(41,6)	60 (27,3)
Total	**704**	**220 (31,2)**

*p<0,001

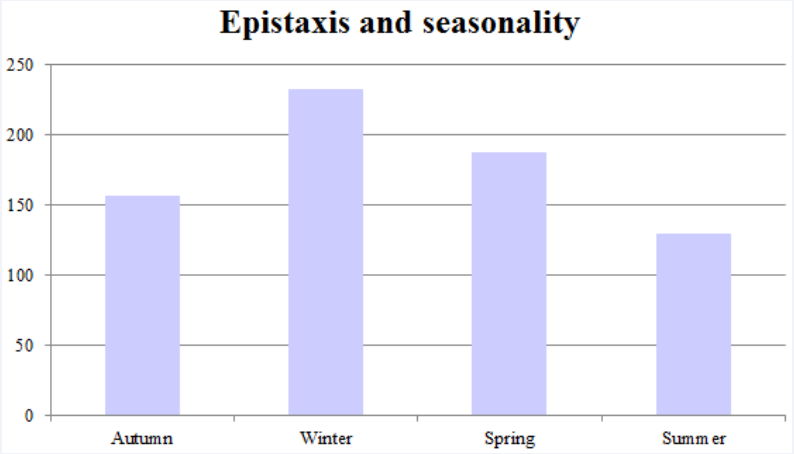

Figure 1 Seasons and occurrence of epistaxis, 2010-2017. Tubarão, Brazil.

reported the use of antiplatelet agents. The data previously exposed differs from the study by Newton et al. [20], Where 62% of the sample used some of these drug classes.

The time of hospital stay was also analyzed, and it was found that 86.1% of the patients did not undergo any day of hospitalization. In this case, there is disagreement with the study by Dal Secchi et al. [16], Where the average hospitalization range was 3 to 7 days.

The main cause of epistaxis in patients aged up to 19 years was not found (idiopathic) in more than 60% of cases. The situation in question corroborates the IAPO Pediatric Otorhinolaryngology Manual (21), which confirms that nosebleeds tend to occur in younger patients in a benign and idiopathic way, with the majority being of previous origin (Kisselbach plexus). In patients over 20 years of age, there is an increase in cases of epistaxis caused by hypertensive crisis in care. Between 20 and 59 years old, 23.5% of patients arrived at the hospital with high blood pressure levels and in patients over 60 years old the rate increased significantly to 55.4%. The data above presents much higher numbers than the Portuguese study by Laffont et al. [22], Which included a total of 549 patients and the hypertensive peak was observed in only 23.5% of them regardless of age. In relation to the study by Newton et al. [20], 56% of the patients declared to have systemic arterial hypertension and in the study by Faistauer et al. [23], 65.8% of the sample had the disease in question. However, in these last two studies cited [20,23], hypertensive crisis cannot be seen as the cause of epistaxis, since only the existence of systemic arterial hypertension was analyzed.

Seasonality and climate are also important factors. In this research, 32.9% of cases occurred in winter, totaling the highest percentage. On the other hand, the summer months had only 18.4%. Such data corroborate with the North American study by Chaaban et al. [24],Which demonstrated a significant increase in cases of epistaxis both in the winter months and in the geographic variation of the United States. Chaaban in his research emphasized that the north of the country, where temperatures are lower, was more affected by cases of nosebleed than the south.

In this research, nasal packing was the management performed in most patients, totaling 46.2% of cases. Expectant treatment, where only head position maneuvers and nasal wing compression were performed, came in second with 41.6%, followed by cauterization (12.1%), and arterial ligation with only 0.1%. The data is in agreement with the study by Dal Secchi et al. [16], (35% of the sample used nasal packing), that of Varshney et al. [25], (43.1% used nasal packing), being the therapy most used in both studies.

The recurrence of episodes of epistaxis was another factor evaluated in the study, being more found when opting for treatment with nasal packing, recurring in 59.1% of cases. Expectant management showed recurrence in 27.3% of cases, and cauterization in 13.6%. There was no recurrence of epistaxis in the only case of arterial ligation therapy. The same happened in the study by Newton et al. [20]), which showed higher percentages of recurrence in nasal packing, 26% in the use of Merocel and 42% in other forms of tamponade. In relation to other therapies, expectant and cauterization, the percentages of both were 20% of recurrence.

In the literature, it is clear that most epistaxis is idiopathic and not recurrent. In addition, it is exposed that the occurrence of a nosebleed depends on several factors, whether environmental, behavioral, anatomical or even physiological. As explained here, the recurrence rate of epistaxis in the main management chosen (nasal packing), was 59.1%. And coincidentally, this was the main therapy in adults and the elderly, in which there is a greater chance of the emergence of systemic diseases such as systemic arterial hypertension and liver cirrhosis. Therefore, the intensification of primary and secondary prevention policies for the aforementioned diseases and others are extremely important to reduce both cases of epistaxis and the severity of them.

As a cross-sectional study, the lack of temporality for more detailed analysis of the relationship between symptoms, management and recurrence of epistaxis can be considered as a limitation. In addition, this study was located only in the city of Tubarão, in Santa Catarina, thus preventing comparison between different populations and different regions.

On the other hand, it was possible to identify several situations that are generally overlooked or disregarded by health professionals, such as the importance of knowing the etiology

of recurrent epistaxis that may indicate untreated systemic diseases, and also how to best treat hemorrhagic conditions in each age group and thus avoid recurrences and complications.

It was concluded in the study that the most used therapy was nasal packing, followed by expectant treatment, cauterization and arterial ligation respectively. Tampon was also the therapeutic method with the highest number of recurrences.

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