

Assessment Of The Efficacy Of The Treatment Methods Of Epistaxis And The Level Of The Pain/Discomfort Experienced With Each Method In Adult Patients

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Abstract

Objectives: To assess the effectiveness and the level of the patient's pain/discomfort experienced by different procedures applied for the treatment of the epistaxis in adult patients.

Patients and methods: A prospective observational study of 121 adult patients presented with epistaxis, from January 2016 to September 2016, at ENT Department in Al-Yarmouk Teaching Hospital in Baghdad, all the patients had been received an adequate treatment modalities accordance to a standard regimen, and at the end of each procedure, the level of their pain/discomfort experienced was assessed according to Visual Analogue Scale (VAS) questionnaire, and the success rate for each procedure was evaluated.

Results: The median VAS score for pain/discomfort in the anterior epistaxis was in the following order; 1.5, 2.5, and 6, for chemical cauterization, electrical cauterization, and nasal packing, respectively, while for posterior epistaxis was 3, 3.5, 6, and 7.5, for electrical cauterization, endoscopic sphenoplatine artery ligation (ESPAL) surgery, nasal packing, and post nasal Foley's catheterization, respectively. The success rate for the anterior epistaxis treatment modalities was 89.36%, 78.37%, and 75%, for electrical cauterization, chemical cauterization, and nasal packing respectively, while for the posterior epistaxis; was 68.18%, 90%, 75%, and 100%, for nasal packing, electrical cauterization, Foley's post nasal catheterization, and (ESPAL) surgery respectively.

Conclusions: In the anterior epistaxis; the pain/discomfort experienced score for both chemical and electrical cauterization was mild, but the success rate was higher with electrical cauterization, while in the posterior epistaxis; both the endoscopic electrical cauterization, and the (ESPAL) surgery were associated with high patient's tolerability, however the (ESPAL) surgery was found to be a superior method as associated with the highest success rate.

Key words: Epistaxis, VAS score, Electrical cauterization, Chemical cauterization

INTRODUCTION

Epistaxis is considered as one of the common rhinological emergencies worldwide, and classified as anterior or posterior epistaxis based on the site of origin, and the anterior epistaxis is usually more common than posterior epistaxis.⁽¹⁾

It is basically a symptom complex not a specific disease, and the bleeding from the nose varying from

mild dribbling to severe haemorrhage which probably may result in compromised of the patient hemodynamic system, while in the majority of the cases, it would be easily controlled, but in about 6% may need specialized intervention, while just about 1% may need hospital admission, with approximately less than 0.01% mortality rate,⁽²⁾ and it's incidence is difficult to assess but it is expected that approximately

60% of the population will be affected by epistaxis at some point in their lifetime.⁽³⁾

Many treatment modalities to control the epistaxis were available, depending on the site of the bleeding source, complex anatomy of the nasal cavity, aetiology of the epistaxis, the age and the concurrent medical status of the patients, and since these factors were widely vary a several efforts had emerged to establish the treatment algorithm in order to standardise the epistaxis management at several medical centres.⁽⁴⁾

The pain/discomfort as applied with any disease acute or chronic, have an important role in recording and analysis of a person's psychological and behavioural characteristics to assess or predict the patient compliance, and that in turn will cause a good satisfaction with treatment protocol recommendation, and thus have a great effect in the improvement of his condition.⁽⁵⁾

As the pain is a subjective symptom, there were no objective methods found to be used for its assessment, and although there were several available subjective measurement tools, but many studies support Visual Analogue Scale (VAS) questionnaire because of its validity for pain intensity, repeatable, easy to use, and can be used for clinical study,⁽⁶⁾ as well as its sensitivity to the treatment effect.⁽⁷⁾

Aim of the study

To assess the effectiveness and level of the patient's pain/discomfort experienced related to different modalities of treatment for control the epistaxis, among adult patients.

PATIENTS AND METHODS

A prospective observational study enrolled 121 patients among the total number of 389 epistaxis patients, attended at ENT Department at Al-Yarmouk Teaching Hospital in Baghdad, during the study period from January 2016 to September 2016, were selected after following the exclusion criteria were considered; age younger than 18 years, bilateral nasal bleeding, traumatic or sinonasal neoplasm causes of the epistaxis, bleeding tendency, abnormal psychosocial status confirmed by patient's medical record, as well as those who were uncooperative or refused to participated in this study.

The information data was collected using a pretested, structured identified chart prepared for this study included; patient's demographics (age, gender), co morbidities, a relevant clinical history of epistaxis as well as the type of treatment modality had been used, followed with full ENT and general clinical

examination with adequate treatment modality accordance, while a Visual Analogue Scale (VAS) questionnaire was handed out to the all participated patients at the end of each treatment modality in order to assess the level of pain/discomfort experienced, as well as the assessment of the success rate for specific treatment modality was studied, and analyzed.

The treatment strategy in the current study was applied as the following; rhinoscopy was conducted after anaesthetized the nasal cavity with cotton pledges soaked with (10% Xylocaine, and 0.05% Xylometasoline solution), in cases of anterior epistaxis; electrical cauterization or chemical (Silver nitrate 75%) cauterization of the bleeding source was the treatment of choice used to control the bleeding, while the anterior nasal packing was used in a rare occasions, as in cases when the bleeding point failed to be identified by rhinoscopy.

While in cases of posterior epistaxis; if the bleeding source was detected to be visible and accessible through endoscopic examination of the nasal cavity a cauterization of the bleeding point was the ideal method used to control bleeding, but in cases when the bleeding was profuse or it was difficult to identify the bleeding source, the nasal cavity was packed with Vaseline soaked ribbon gauze temporarily, a need for a second endoscopic examination was recommended, and hence if the bleeding source was detected to be visible in the second look, it controlled with electrical cauterization, but nevertheless in some cases, in spite of all the aforementioned methods used, they were failed to control the bleeding, in these cases a Foley's catheter inserted through the nose until the nasopharynx was reached and inflated with air, as well as the nasal cavity was packed with Vaseline soaked ribbon gauze were carried out in order to stop the bleeding.

However any patient with unstable hemodynamic condition or/and poor bleeding control with the nasal packing and the Foley's post nasal catheterization, those patients were managed in an inpatient setting, and finally when all the aforementioned conservative measures were failed to control the bleeding, then a surgical intervention measure as a Endoscopic Sphenopalatine Artery Ligation (ESPAL) was performed under general anesthesia.

The VAS questionnaire to evaluate the level of the pain/discomfort experienced was handed out at the end of each modality of the treatment to 121 participated patients, and were asked to record their pain/discomfort experienced level on a 10 cm (11-point) VAS scale (0: no pain, 10: most severe pain

imaginable) for each treatment modality they had received, moreover if the patient had been underwent more than one treatment modality, then each event was analyzed separately, also in regards to patient who had received nasal packing, the level of the pain/discomfort experienced during insertion, remaining or removal of the pack was calculated according the highest score.

The study was approved by the Ethical and the scientific committee of the institution, as well as the informed consents from all participated patients was taken.

Statistical analysis

The median values and 95% Confidence Intervals (CI) were provided for VAS analysis, as well as the comparison between treatments groups was accomplished by Mann-Whitney U test.

RESULTS

Among 121 studied patients, there were 78 males (64.46%), and 43 females (35.53%), and the most common frequency (24.79%) was detected in age group 40-49.

The distribution of the epistaxis in relation to the gender within different age groups was shown in table 1.

Table 1: The distribution of the epistaxis among the patient’s age groups

Age groups	Male	Female	Patients no.
18-29 years	13	7	20
30-39 years	13	8	21
40-49 years	19	11	30
50-59 years	18	9	27
Above 60 years	15	8	23
Total	78	43	121

The site of the nasal bleeding was evaluated, and revealed 84 patients (69.42%) had anterior epistaxis, that most commonly (32.14%) were detected in the age below 40 years, and 37 patients (40.65%) had posterior epistaxis, that most commonly (35.13%) were seen in the age above 60 years.

The assessment of the median VAS score in the current study revealed a statistically significant in the median VAS score with different treatment modalities of the anterior epistaxis according to Mann-Whitney U test (p=0.0001), with 95% Confidence Interval (CI), as shown in table 2.

Table 2: The median VAS score for anterior epistaxis with different treatment modalities

Treatment modality	No.	Median VAS (95% CI)
Electrical cauterization	47	2.5 (2.36, 2.64)
Chemical cauterization	37	1.5 (1.39, 1.61)
Nasal packing	4	6 (5.62, 6.38)

The median VAS score with different treatment modalities of the posterior epistaxis revealed a statistical significance between electrical cauterization and packing relating VAS scores (p=0.0001) using Mann-Whitney U test, with 95% Confidence Interval (CI), while the small sample size of Foley's post nasal catheterization, and (ESPAL) surgery modalities had been made the comparison with other modalities to be statistically unreliable, as shown in table 3.

Table 3: The median VAS score for posterior epistaxis with different treatment modalities

Treatment modality	No.	Median VAS (95% CI)
Nasal packing	22	6 (5.74, 6.26)
Electrical cauterization	10	3 (2.59, 3.41)
Foley's post nasal catheterization	8	7 (5.87, 8.13)
(ESPAL) Surgery	3	3.5 (1.89, 4.11)

The success rate for the different treatment modalities of the anterior epistaxis was recorded and analyzed, and found a statistical significance between the electrical, and the chemical cauterization (p = 0.03).

The distribution of the success rate for the different treatment modalities in the control of the anterior epistaxis was shown in table 4.

Table 4: The success rate for anterior epistaxis with different treatment modalities

Treatment modality	Total no.		Success rate	
	No.	%	No.	%
Electrical cauterization	47	53.40	42	89.36
Chemical cauterization	37	42.04	29	78.37
Nasal packing	3	4.54	4	75.00

The success rate for the treatment of the posterior epistaxis was recorded and revealed a statistical significance between the nasal packing and the electrical cauterization ($p= 0.01$), while there was no statistical significance between the Foley’s post nasal catheterization and ESPAL surgery ($p=0.3$).

The distribution of the success rate for the different treatment modalities in the control of the posterior epistaxis was shown in table 5.

Table 5: The success rate for posterior epistaxis with different treatment modalities

Treatment modality	Total no.		Success rate	
	No.	%	No.	%
Nasal packing	22	51.16	15	68.18
Electrical Cauterization	10	23.25	9	90.00
Foley's post nasal catheterization	8	18.60	6	75.00
(ESPAL) Surgery	3	6.97	3	100

DISCUSSION

The epistaxis is a common clinical emergency presentation encountered in ENT practice, and its management included; resuscitation, identification of the bleeding source, control of the bleeding, and the treatment of the cause of the epistaxis,⁽⁸⁾ so the goals of the therapy are haemostasis achievement, low of patient’s discomfort, recurrence rate, and

complications, also a cost effectiveness, as well as a short hospital stay,⁽⁹⁾ however it was still a controversial issue exists conserving the best method that will be capable of the achievement these goals, although there were several treatment modalities and algorithms in the literatures for control of the epistaxis, yet the treatment modalities were generally divided into 2 groups; conservative methods as (anterior nasal packing, electrical, and chemical cauterization, posterior nasal packing), and surgical methods as arterial ligation, and an embolization of the feeding blood vessels, and other nasal surgeries, however its worth to mentioned that, the management of the epistaxis must be tailored to the clinical condition of the patient, as considered as a rule with all medical conditions.

In the current study the most common frequency of epistaxis was the anterior epistaxis, age above 40 years, with male predominance, these observations were almost comparable to the observations of the some studies,^(9, 10, 11) however other studies,^(12,13) disagreed with this age group, as they found the highest incidence was detected in younger age group, the reason for that, was due to the majority of their patients had a traumatic aetiology which usually found in young active population, while this traumatic cause of the epistaxis was excluded from the current study.

In the assessment of the median VAS scores for the anterior epistaxis associated treatment modality; the mildest form of the patient’s pain/discomfort was detected in the chemical and electrical cauterization at the following frequencies of 1.5, and 2.5 respectively, while the worst level of pain/discomfort was detected within the nasal packing as score of 6, however there were a few literatures available that compared the pain/discomfort that caused by different treatment options of anterior epistaxis, one of these was a study done by Nikolaou et al,⁽¹²⁾ as they found the median VAS scores for chemical and electric cauterization, and Rapid Rhino packing was 1.5, 2.0, and 6 respectively, which were very comparable with the level of the discomfort in our patients, in spite of the different nasal packs materials that had been used in the two studies.

Although the nasal packing is often an effective and a simple tools for control of the nasal bleeding, and also because of its availability, easy placement and removal, that had made this option as one of a first-line treatment, but it also can be quite uncomfortable and may be responsible for many of complications and adverse effects,⁽¹⁴⁾ and it is worth to mention that, this type of the treatment modality was seldom used in the current study, since all the anterior epistaxis was of

unilateral type, as well as the vast majority the bleeding source was accessible by rhinoscopy and eligible for controlled by cauterization, except in 3 patients.

For the posterior epistaxis associated treatment modality; the mildest discomfort level was detected in (ESPAL) Surgery by bipolar cauterization with median VAS score of 3, and this looks comparable with Nikolaou et al study,⁽¹²⁾ and the highest score of 7 was detected in Foley's post nasal catheterization, and this agreed with Barnes ML, and White PS,⁽¹⁵⁾ study who revealed the traditional postnasal packs were very uncomfortable and may lead significant hypoxia, and when compared with SPA ligation, the PA surgical ligation had been shown to provide improvement patient's satisfaction, efficacy, together with reduced in overall cost burden.

The efficacy of each treatment modality was evaluated in the current study, and revealed the failure rate of anterior epistaxis treatment modalities was 21.63%, and 10.64% for the chemical cauterization, and for the electrical cauterization respectively, and these rates were almost comparable John et al.⁽¹⁶⁾

Johnson et al,⁽¹⁷⁾ who used the bipolar electrocautery to control the epistaxis in their patients, they concluded, the electrocautery had a longer nosebleed-free time, and a lower incidence of recurrent when compared to the chemical cautery.

However this superiority of bipolar cautery in anterior epistaxis control was not supported by Toner and Walby,⁽¹⁸⁾ who showed there was no statistically significant difference between electrical and Silver nitrate cautery in either controlling the epistaxis or in the rate of the incidence of its complications, as they concluded that since cautery with a silver nitrate tipped applicator is simpler, and of equal effectiveness, it would appear to be the treatment of choice for simple anterior epistaxis.

While the frequency of the failure rate in treatment modalities of the posterior epistaxis was detected in the nasal packing 31.82%, Foley's post nasal catheterization, 25%, and in the endoscopic electrical cauterization 10%, while the maximum success rate was found with the ESPAL surgery (100%), and these finding were almost similar with results were detected by other studies.⁽¹⁹⁻²¹⁾

The current study observations were support the proposal of numerous studies,⁽²²⁻²⁴⁾ that had emerged over the last few years which considered the posterior epistaxis as a different issue from the anterior epistaxis, and the primary treatment modality (because of their high efficacy, and low morbidity) was surgical,

specifically the endoscopic electrical cauterization of the bleeding source to be stated first, then consider the ESPAL surgery which of no doubt the surgical procedure of choice when there was intractable hemorrhage, and in the case of non-availability or the failure of the endoscopic electrical cauterization, or when there was endoscopic unidentifiable bleeding source, as well as in the recurrent cases.

Conclusions

In the anterior epistaxis; the pain/discomfort VAS score for the chemical and the electrical cauterization of the treatment modalities was both mild and well tolerated by the patient, but the success rate was detected higher with the electrical cauterization, while in the posterior epistaxis; the endoscopic electrical cauterization was associated with high success rate, and high patient's tolerability, and the Foley's post nasal catheterization was associated with high rate of discomfort, with a relatively high failure rate, finally the (ESPAL) surgery was found to be a superior method of the epistaxis treatment as associated with the lowest patient's pain/discomfort and the highest success rate.

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