ORIGINAL RESEARCH

A comparative analysis of microwave ablation versus bipolar electrocautery in patients with idiopathic epistaxis

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ABSTRACT

Background: One of the most prevalent emergent otorhinolaryngological diseases is idiopathic recurrent epistaxis. The present study was conducted to compare microwave ablation and bipolar electrocautery in patients with idiopathic epistaxis. **Materials & Methods:** 74 patients with idiopathic recurrent epistaxis of both genderswere divided into 2 groups. Each group had 37 patients. Group I underwent microwave ablation and group II underwent bipolar electrocautery. Parameters such as site of bleeding, duration of bleeding, time to achieve successful hemostasis (minutes), VAS on day 1 and day 2 and recurrent bleedingafter 3 days, 1 and 12 weeks, and 6 months were recorded. **Results:** Group I had 20 males and 17 females and group II had 19 males and 18 females. Bleeding site was middle and posterior nasal septum seen in 10 in group I and 7 in group II, middle meatus region in 7 in group I and 9 in group II, inferior meatus region 9 in group I and 8 in group II, olfactory cleft 6 in group I and 4in group II, Kiesselbach's area seen in 3 in group I and 4 in group II, and others in 2 in group I and 5 in group II. Time to achieve successful hemostasis was 2.3 minutes in group I and 4.1 minutes in group II. Recurrent bleeding was seen in 5 in group I and 9 patients in group II. The difference was significant (P< 0.05). Pain on VAS on day 1 was 3.4 in group I and 5.7 in group II and on day 2 was 1.2 in group I and 2.8 in group II. The difference was significant (P< 0.05). **Conclusion:** A good course of treatment for people with idiopathic recurrent epistaxis is microwave ablation.

Key words: bleeding, epistaxis, Microwave ablation

INTRODUCTION

One of the most prevalent emergent otorhinolaryngological diseases is idiopathic recurrent epistaxis. While many times treatment in outpatient departments can achieve hemostasis, we have seen some challenging situations involving patients who have recurrent bleeding.[1] The patient must be initially revived, according to conventional care protocols. If the bleeding site cannot be located, anterior and posterior nasal packing must be performed to stop the bleeding.[2]

Depending on the main source of bleeding, epistaxis is categorized as anterior or posterior, and it is assumed to be more common in men. While posterior nasal bleeding is more frequently observed in elderly persons with hypertension or arteriosclerosis, anterior epistaxis is more common in children and young adults.[3] In the majority of children, spontaneous bleeding is nearly invariably venous and starts from Little's area, the anterior portion of the nasal septum, where a number of arteries anastomose with each other forming a plexus of vessels (Kiesselbach's plexus) under the thin mucosa. When this area is exposed to dry air or mild trauma, bleeding frequently occurs. Children may pick at the crusts and scabs that form as a result of their itching, further traumatizing the area.[4]

A relatively recent method called microwave ablation (MWA) has been utilized intraoperatively to achieve hemostasis at the surgical margins during laparotomies.[5] With recent developments in endoscopic sinus surgery, the treatment of recurrent epistaxis with either suction monopolar cauterization or bipolar cautery with suction is well established.[6]The present study was conducted to compare microwave ablationandbipolar electrocautery in patients with idiopathic epistaxis.

MATERIALS & METHODS

The present study comprised of 74 patients with idiopathic recurrent epistaxis of both genders. All

patients were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups. Each group had 37 patients. Group I underwent microwave ablation and group II underwent bipolar electrocautery. Parameters such as site of bleeding, duration of bleeding, time to achieve successful hemostasis (minutes), VAS on day 1 and day 2 and recurrent bleedingafter 3 days, 1 and 12 weeks, and 6 months were recorded. Results were assessed statistically. P value <0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I (37)	Group II(37)
Male	20	19
Female	17	18

Table I shows that group I had20 males and 17 females and group II had 19 males and 18 females.

Table II Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Bleeding site	Middle and posterior nasal septum	10	7	0.52
	Middle meatus region	7	9	
	Inferior meatus region	9	8	
	Olfactory cleft	6	4	
	Kiesselbach's area	3	4	
	Others	2	5	
Time to achieve successful hemostasis (minutes)		2.3	4.1	0.04
Recurrent bleeding		5	9	0.05

Table II, graph I shows that bleeding site was middle and posterior nasal septumseen in 10 in group I and 7 in group II, middle meatus regionin 7 in group I and 9 in group II, inferior meatus region 9 in group I and 8 in group II, olfactory cleft 6 in group I and 4in group II, Kiesselbach's area seen in 3 in group I and 4 in group II, and othersin 2 in group I and 5 in group II. Time to achieve successful hemostasis was 2.3 minutes in group I and 4.1minutes in group II. Recurrent bleeding was seen in 5 in group I and 9 patients in group II.The difference was significant (P< 0.05).

Graph I Comparison of parameters

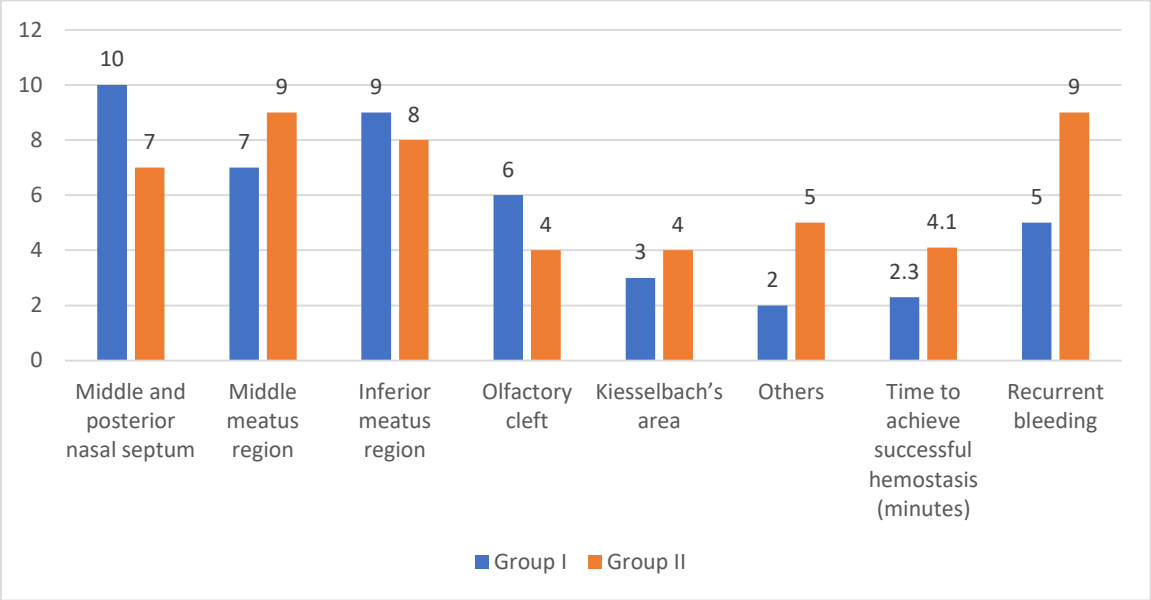

Table III Comparison of pain on VAS

Day	Group I	Group II	P value
Day 1	3.4	5.7	0.01
Day 2	1.2	2.8	0.02

Table III shows that pain on VASon day 1 was 3.4 in group I and 5.7 in group II and on day 2 was 1.2 in group I and 2.8 in group II. The difference was significant (P< 0.05).

DISCUSSION

Children with self-limiting nasal bleeding associated with recurrent idiopathic epistaxis, for which no particular cause has been found, can suffer until they are 16 years old. Acute bleeding from the nose, nasal cavity, or nasopharynx is referred to as epistaxis.[7] Such nosebleeds are a prominent cause of morbidity and hospital referral because recurrent episodes cause children, their caregivers, and doctors much distress and anxiety.[8,9] It is believed that the colder winter months in northern latitudes, when upper respiratory tract infections are more common and indoor humidity drops to low levels at home and at work, are the times when idiopathic epistaxis is most common in all age groups. transforms the exterior temperature from cold to warm.[10]The typical nasal cycle of alternating congestion and decongestion may vary when one goes from a cold outer environment to a warm, dry one. This can then result in sinonasal congestion, engorgement of the nasal mucosa, and finally epistaxis. Epistaxis is known to occur more frequently in areas with airborne environmental contaminants. Additionally, epistexia is more prevalent in hot, dry locations with low humidity.[11]The present study was conducted to compare microwave ablation and bipolar electrocautery in patients with idiopathic epistaxis.

We found that group I had 20 males and 17 females and group II had 19 males and 18 females.Lou Z[12]compared the efficacy of microwave ablation and silver nitrate cautery as treatments for idiopathic recurrent anterior epistaxis in adults.Adults with recurrent anterior epistaxis intra-operatively treated via microwave ablation or silver nitrate chemical cautery of the anterior nasal septum were enrolled. The haemostasis success rate within 24 hours' treatment of convex lesions was significantly higher in the microwave ablation group than in the cautery-only group. Of patients with convex lesions, the recurrence rate to six months was significantly higher in the cautery group than in the microwave ablation group, but this was not the case for those with flat lesions.

We found that bleeding site was middle and posterior nasal septum seen in 10 in group I and 7 in group II, middle meatus region in 7 in group I and 9 in group II, inferior meatus region 9 in group I and 8 in group II, olfactory cleft 6 in group I and 4in group II, Kiesselbach's area seen in 3 in group I and 4 in group II, and others in 2 in group I and 5 in group II. Time to achieve successful hemostasis was 2.3 minutes in group I and 4.1 minutes in group II. Recurrent bleeding was seen in 5 in group I and 9 patients in group II. Felek SA et al[13]investigated the feasibility, effectiveness and complications of bilateral simultaneous silver nitrate cauterization for anterior nasal septal epistaxis in otherwise healthy children.Complete or near-complete epistaxis control was obtained in 76% of the patients after the first cauterization, and in 86% of the patients after the second cauterization in a mean follow-up period of 8 months. Partial success was obtained in five patients. The crusting in the cauterization area was healed late in six patients. Septal perforation, tattooing, or mucocutaneous/allergic reactions were not observed in any of the patients.

We found that pain on VAS on day 1 was 3.4 in group I and 5.7 in group II and on day 2 was 1.2 in group I and 2.8 in group II. For big hepatocellular carcinomas (HCC) (>4 cm in diameter), Vyas et al[14] compared the efficacy of ultrasound (US)-guided percutaneous 915 MHz microwave (MW) ablation with the 2450 MHz MW ablation. Patients who underwent US-guided percutaneous microwave ablation (MW ablation) with the goal of curing HCC >4 cm in diameter were randomized into two groups: the 915 MHz MW group and the 2450 MHz MW group. They contrasted the two groups' ablation outcomes. In the 915 MHz MW group, 3.69 +/- 0.6 antenna insertions were needed for each tumour, compared to 4.71 +/- 1.61) in the 2450 MHz MW group ($p = 0.01$). The technique effectiveness rate was 85.7% (18/21) and 73.7% (14/19) in the 915 MHz MW group and 2450 MHz MW group, respectively, based on the follow-up contrast-enhanced imagings.In the 915 MHz MW group and the 2450 MHz MW group, the rate of local tumour progression (LTP) was 14.3% (3/21) and 26.3% (5/19), respectively ($p = 0.44$). None of the patients experienced thrombosis of the major vessels or died.

CONCLUSION

Authors found that a good course of treatment for people with idiopathic recurrent epistaxis is microwave ablation.

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