COMPARISON OF CHEMICAL CAUTERY VERSUS TOPICAL VASOCONSTRICTORS IN IDIOPATHIC PEDIATRIC ANTERIOR EPISTAXIS

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ABSTRACT

Objective: To compare efficacy of chemical cautery with silver nitrate along with fucidin ointment versus topical vasoconstrictor spray (xylometazoline 0.05%) and fucidin ointment application in idiopathic pediatric anterior epistaxis.

Study Design: Randomized controlled trial.

Place and Duration of Study: Study was carried out at Combined Military Hospital (CMH) Bahawalpur from Jan 2016 to Dec 2016.

Material and Methods: Total 112 patients fulfilling the inclusion criteria were selected from Ear Nose Throat (ENT) outpatient department at CMH Bahawalpur. They were randomly divided into two groups of 56 cases in each group. Group A individuals were treated by cauterization with 75% silver nitrate followed by fucidic acid ointment. Group-B individuals were treated with topical vasoconstrictor spray (xylometazoline 0.05% twice a day for one week) along with fucidic acid ointment. Efficacy was determined in terms of control of epistaxis, whether the procedure was effective in controlling epistaxis or otherwise i.e. patient again developed bleeding from same side of nose and needed further treatment to control epistaxis. All the cases were followed up for two months after procedure to check their efficacy.

Results: There were total 61 (54.46%) males and 51 (45.54%) females among the cases. Mean age of patients was 8.27 (± 2.34) years. Both the groups were comparable as regards the gender (p=0.817) and age (p=0.749). Group-A were treated with silver nitrate cauterization followed by fucidic acid ointmnet application and group-B were treated by vasoconstrictor nasal spray along with fucidic acid ointment. In group A (silver nitrate cautery), 87.5% cases had no rebleed during two months follow up and in group-B, 67.8% children had no rebleed during two months follow up period (p=0.022).

Conclusion: Chemical cauterization with silver nitrate along with fucidic acid ointment application was found to be more effective as compared to xylometazoline nasal spray and fucidic Acid ointment application in treating idiopathic pediatric epistaxis.

Keywords: Chemical cautery, Epistaxis, Vasoconstrictor nasal spray.

INTRODUCTION

Epistaxis is most common otorhino-laryngologic emergency[1]. Epistaxis occurs quite commonly in children. In majority of them it is self limiting. The parents bring the children to physician when it becomes recurrent. Recurrent epistaxis is of significant nuisance to the children and their parents. Around 30% of children below five years of age and more than 50% of those between 6-15 years of age experience epistaxis[2]. Epistaxis is mainly divided into two major types, anterior and posterior epistaxis depending on the site of bleeder and it is more common in males[3]. Children have habit of nose picking and suffer from upper respiratory tract infection frequently. Both these factors result in recurrent anterior epistaxis in children. In children most of epistaxis occurs from little,s area. Here blood vessels form a plexus called Kiesselbach plexus under thin nasal mucosa[4]. This mucosa is under effect of dry air, infection and nose picking/rubbing which cause crusting. Childhood recurrent epistaxis is usually attributed to crusting and vestibulitis[5]. However in majority of cases no direct cause is

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found and it is termed as idiopathic. Epistaxis has bimodal peaks, one in children younger than 10 years and other in adults over 40 years[6]. Most of recurrent pediatric nosebleeds are self limiting and do not require any intervention or settle with ordinary measures like pinching nose. But in severe cases, it requires treatment by otorhinologist. Prominent visible blood vessels are present on anterior part of nasal septum of children in 40-50 % of cases[7,8]. Studies have revealed that these visible vessels are present on the same side as of bleeding rather than on the opposite side[7,8]. Local vasoconstrictor spray can be used for treating recurrent epistaxis[9]. Chemical cautery of the prominent/ visible vessels under local anesthesia is also very effective modality. Children can easily tolerate chemical cautery with small cotton wool ball. Chemical cautery has an advantage of being carried out in local anesthesia and children can tolerate chemical cautery well[10]. Electrocautery requires general anesthesia in children that is why it is kept as a secondary measure or for refractory cases in children. Other treatment modalities for idiopathic recurrent pediatric epistaxis include petroleum jelly, oil based antiseptic ointments etc. In the present study we have compared chemical cauterization of anterior nasal septum with local vasoconstrictor nasal spray for treating cases of idiopathic pediatric epistaxis.

MATERIAL AND METHODS

The study was carried out in Combined Military Hospital Bahawalpur, from Jan 2016 to Dec 2016. It was a randomized controlled trial. Children with recurrent anterior epistaxis between ages of 5 to 12 years were selected from the ENT outpatient department of CMH Bahawalpur. All those children who had bleeding disorders, history of significant nasal trauma, previous nasal cauterization, liver or renal disorder, children with bilateral nasal bleed or nasal crusting and who lost to follow up after the procedure were excluded from the study. The sample size was calculated using Epitool software, keeping expected bleeding at 3.5%[4], desired precision at 0.05 and 95% confidence interval. The calculated sample size was 52 in each group. Researcher identified 120 cases of epistaxis for the subject study but 8 did not meet the inclusion criteria. One hundred and twelve cases were randomly divided into two groups of 56 each through random number tables. Sampling technique used was non-probability convenient sampling. Informed consent was taken from the parents for subject study.

Group-A children were treated by chemical cautery of the anterior nasal septum with 75% silver nitrate and group-B children were treated with a readily available vasoconstrictor nasal spray i.e 0.05% xylometazoline along with local oil based antiseptic ointment (Fucidic acid ointment) for one week. First vasoconstrictor spray was used and then ointment was applied on the septum with help of little finger as far as possible. Local anesthetic agent 4% lignocaine solution was applied for 5 minutes with help of cotton swab in the cases of group-A before chemical cautery. Prominent visible blood vessels along with bleeding point if any (on the anterior nasal septum) were gently cauterized with cotton wool balls/pledgets dipped in the respective chemicals. After the procedure, all the cases were prescribed local antibiotic oinment (Fucidic acid ointment) for 01 weeks. All the cases of both groups were followed up for two months after the procedure. Both the treatment modalities were compared in terms of efficacy. Efficacy was defined in terms of control of nasal bleeding from the same side where cautery was done or nasal spray was used. All the cases were asked to report in OPD in case of bleeding from nose. The schedule of follow up was 2 weeks, 4 weeks and 8 weeks after the procedure. The data were analyzed with help of statistical package for social sciences (SPSS) 20. Mean and standard deviation were calculated for quantitative variables. Frequency and percentages were calculated for qualitative variables. Chi square was used to compare qualitative variables like gender and t-test was used for quantitative variables like age.Chi square was also applied to

assess efficacy of both groups. A *p*- value of <0.05 was taken as statistically significant

RESULTS

There were total 61 (54.46%) males and 51 (45.54%) females among the cases. Mean age of patients was 8.27 ± 2.34 years. Both the groups were comparable as regards the gender (p=0.570) and age (p=0.753) as shown in table. Both the groups were treated according to the plan and the outcome was compared. In group-A (silver nitrate cautery), 87.5% cases had no rebleed during two months followup and in group-B 67.8% children had no rebleed during two months followup period. This difference was statistically significant (p=0.012) as shown in table.

Table: Age, Gender distribution and Efficacy of both groups.

		Group A	Group B	*p*-value
Age in years		8.34 ± 2.29	8.20 ± 2.41	0.753
Gender n(%)	Male	32 (57.14)	29 (51.78)	0.570
	Female	24 (42.86)	27 (48.21)	
Efficacy n(%)	No Rebleed	49 (87.5)	38 (67.8)	0.012
	Rebleed	7 (12.5)	18 (32.1)	

DISCUSSION

Silver nitrate is commonly used for chemical cauterization of nasal septum in cases of idiopathic pediatric epistaxis. Two commercially available preparations of silver nitrate 75% and 95% are used for subject purpose[11]. Seventy five percent silver nitrate is termed as safe and 95% is said to be associated with higher complication rate[12]. In the present study, we have compared chemical cautery with 75% silver nitrate and local vasoconstrictor spray (0.05% xylometazoline nasal spray). We have performed this study in children over the age of 5 years because in younger children chemical cautery is difficult to perform because of lack of cooperation. We could not find any previous research which has compared these treatment modalities in past. In our present study we have seen that chemical cautery with silver nitrate along with fucidin ointment is significantly better as compared to xylometazoline along with fucidin. Razdan et al have compared chemical cautery with electric cautery and nasal packing[13]. But in our opinion, conservative and office based measures like the ones used in our study should be preferred in children and electric cautery etc should be kept in reserve for the refractory cases. Razdan U et al used silver nitrate and trichlor acetic acid for chemical cautery[13] where Silver nitrate was successful in 72.6% cases and trichloracetic acid (TCA) in 71.5% cases (p>0.10).

Majority of researchers have compared chemical cautery with electrocautery or antibiotic ointments and other modalities. Ruddy compared silver nitrate cautery with antiseptic nasal ointment for epistaxis[14] and both these modalities were shown to be equally effective in controlling epistaxis. Calder has compared silver nitrate cautery and antiseptic ointment "naseptin" with antiseptic ointment "naseptin" alone[15]. They found silver nitrate cautery and antiseptic ointment significantly superior to the antiseptic ointment alone. Glynn F and coworkers compared different concentrations of silver nitrate cautery and found the 75% silver nitrate better for cauterization[11]. Recently Shargorodsky et al showed that 77.1% of anterior epistaxis cases in the case review were treated with silver nitrate cautery with a 79% success even after first trial[16]. Overall, chemical cautery is very helpful in treating pediatric epistaxis. It is an office based procedure; performed quickly and there is no need of any special equipment and instruments. Moreover it can be done easily under local anesthesis.

CONCLUSION

Chemical cauterization with silver nitrate along with fucidic acid ointment application was

found to be more effective as compared to Xylometazoline nasal spray and fucidic acid ointment application in treating idiopathic pediatric epistaxis.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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