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COMPARATIVE INDICATORS OF JOINT OPERATIONS PERFORMED USING LOCAL HEMOSTATIC AGENTS IN JOINT PATHOLOGIES OF THE NASAL CAVITY

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ABOUT ARTICLE

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Abstract: In recent years, the frequency of nosebleeds, which is one of the most common indications for admitting patients to ENT hospitals, has been increasing dramatically. Patients with this pathology make up to 20.5% of all hospitalized patients. According to research, 80% of nosebleeds are associated with systemic factors, among which arterial hypertension is the most important. Also, injuries of the face-jaw area, tumors of the nose and paranasal cavities, systemic diseases of the connective tissue, and coagulopathies of various genesis are common causes of nosebleeds. In practice, most often (80-90%) there is bleeding from the front-lower sections of the nasal septum (zone Kiesselbach), where the great palate and anterior ethmoidal arteries are anastomosed. Bleeding from the posterior and posterior-superior parts of the nasal cavity (zone Woodruff) is less common, but they are characterized by an excellent melting and relapsing course and are often life-threatening. The difficulty of stopping bleeding from these sections is due to the presence of a strong system of anastomoses between the pool of external and internal carotid arteries.

INTRODUCTION

Most often, nosebleeds have a recurring character and can be accompanied by massive blood loss of up to 2-2.5 liters and can lead to death [12,16].

Nasal tamponade is the most common method of stopping nosebleeds [1-5] . The main disadvantage of gauze tamponade is the recurrence of bleeding after tampon removal. Repeated bleeding, especially in the middle and back sections of the nasal cavity, is associated with the inevitability of damage to the mucous membrane during tampon placement due to the impossibility of directly targeting the bleeding surface. The result of this is the activation of local fibrinolysis with the formation of sparse fibrin adhesions in the area where the tampon touches the surrounding tissues in the first days after tamponade [1,15] . In order to improve the gauze tamponade method, some authors use gauze tampons with aminocapron suggest pre-soaking with acid, feracryl, caprofer and other hemostatic agents [6-13]. These tools are effective, but some authors point to the development of persistent and long-term swelling of the mucous membrane of the nasal cavity during tamponade with moistened gauze tampons [14,15].

For tamponade of the nasal cavity, in addition to gauze tampons , foam, oxycellulose, hemostatic vixose, heterogeneous peritoneum, placenta are used [16]. Foam is characterized by good elasticity and uniform pressure on the fabric. The advantage of tampons made of Kanoxicel and hemostatic vixose is due to their easy removal due to the formation of an amorphous substance, as well as their antibacterial effect due to the kanamycin contained in Kanoxicel. At the same time, these methods cannot always provide adequate hemostasis in nosebleeds [17] .

despite the fact that there are many different methods of stopping nosebleeds (cryoeffect, chemical burning, exposure to drugs, use of pneumotampons, etc.) , most of them are used less often compared to gauze tamponade due to their low efficiency and the presence of complications. Undoubtedly, methods of stopping nosebleeds without tampons are physiological [18,19]. Many modern methods (endoscopic mono- and bipolar coagulation, X-ray endovascular occlusion of trunk vessels) are also not free of shortcomings, so the use of reliable and safe methods of hemostasis during nosebleeds remains an urgent problem of otorhinolaryngology [20,21].

In order to summarize the basic information obtained from domestic and foreign studies on the use of drugs with different chemical structures and mechanisms of action to stop bleeding, it is appropriate to dwell on the characteristics of the main local hemostatic agents.

RESULTS

Patients with diseases of the connective tissue, liver, blood system, various systemic disorders of hemostasis, as well as patients who took antiaggregants or anticoagulants for a long time due to concomitant diseases were excluded from the study. All patients underwent planned operative

procedures due to diseases of the nose and paranasal cavities. In all patients with these diseases, coagulogram, blood clotting time, and bleeding time parameters were evaluated before surgery. In the studied groups, the indicators of laboratory analyzes of patients did not differ from the reference indicators.

General blood and biochemical analyzes of blood, biochemical laboratory tests were carried out on Express-plus of Bayer (USA), Delta of Kone instruments (Finland), Specific Basic equipment of Kone instruments (Finland).

All patients underwent simultaneous operative procedures under local and general anesthesia.

In order to stop bleeding from the nose, 60 out of 120 patients underwent anterior tamponade of the nasal cavity, 60 underwent local hemostatic application.

The effectiveness of treatment in the studied group of patients was evaluated based on the continuation of bleeding, the time of stopping bleeding indicating the need for additional treatment and diagnostic measures, the analysis of the number of recurrences of bleeding, and clinical and laboratory data. It was also studied whether the investigated drugs can affect the main parameters of the blood coagulation system.

All patients were divided into 2 groups according to the types of hemostasis used. 60 patients underwent anterior tamponade of the nasal cavity using a gauze pad - these patients constituted the control group. In 60 patients, tamponade of the nasal cavity was performed using a hemostatic sponge in the form of a film. In this case, the hemostatic drug was removed from the nasal cavity on the 3rd day after the procedure. In all groups of patients affected by nosebleeds, the drug etamisilat was injected intramuscularly in a dose of 12.5% - 4.0 twice a day, and hemostatic therapy was also carried out. Patients with bleeding volume greater than 10% of circulating blood volume received infusion replacement therapy.

Information about the patients and the hemostatic agents used is presented in Table 1.

Table 1

Distribution of patients with nosebleeds by gender and age

Used g hemostatic tools	Men			Women			Total
	18-39	40-59	60	18-39	40-59	60	

Gauze tampon	7	1 7	9	5	1 6	6	6 0
Hemo sponge	10	22	6	7	1 0	5	6 0
total	17	3 9	15	12	2 6	1 1	120

As can be seen from the given table, the gender and age of the patients did not differ much between the collagen "Hemogobka" and gauze tampon used in both groups. This, in turn, shows the reliability of the results obtained in our research.

In the studied groups of patients, the time of cessation of bleeding, characterized by the absence of blood flow along the back wall of the pharynx, was determined during pharyngoscopy. An analysis of the number of recurrences of bleeding after tampon or hemostatic removal was also performed. The effect of local hemostatic agents on hemostasis indicators in the general blood flow was studied. After the manipulations, the description of the changes in the mucous membrane of the nasal cavity, as well as the complications associated with these procedures were determined, and the level of pain sensations was evaluated according to the points of the visual-analog scale.

A comparative analysis of the studied hemostatic agents and gauze tamponades showed that the average time of complete cessation of bleeding, characterized by non-flow of blood along the back wall of the pharyngoscopy, was 9.8±1.7 minutes after typical gauze tamponade. After tamponade of the nasal cavity with a hemostatic sponge, this result was achieved after an average of 4.4±0.6 minutes (table 2).

Table 2

Effect of local hemostatic agents on stopping bleeding in patients with early epistaxis after joint surgery (min.).

Under study indicators	Control group	Hemoglobin used group
Time to stop bleeding , minutes	4.3 ± 0.7 _	2.6 ±0.4 *

***- The differences are reliable compared to the indicators of the control group, (r<0.05)**

Thus, complete hemostasis was achieved in the group of patients treated with hemostatic agents in a reliably shorter time than in the control group.

In order to determine the possible effect of local hemostatic agents on the indicators of systemic hemostasis, 30 minutes after the application of these agents, the parameters of the blood coagulation system were studied in the patients of the study group (table 3). In order to compare with the initial data, a coagulogram analysis was performed in these patients before the application of local hemostatic agents.

Table 3

Effect of collagen "Hemogubka" tool and gauze tamponade on hemostasis parameters in patients with nosebleeds after joint surgical procedures

Learned indicators	After operative practice		
	Control group	"Hemogubka" used group	Gauze tampon applied group
FPTV _ s	32.9 ±3.7*	31.7 ±2.9*	33 ,! .8 ±3.4*
Prothrombin index i , %	98.2 ±10.1*	92.7 ±8.9*	93.6 ±9.2*
Plasma f ibrinogen, g/l	3.1 ±0.4*	2.8 ±0.3*	3.2 ±0.3*

***- The differences are not reliable compared to the indicators of the control group (p<0.05)**

APTV after surgery was 32.9±3.7 s in the control group, and 31.7±2.9 s after hemo-sponge exposure (differences are not statistically reliable - r>0.05). The prothrombin index was 98.2±10.1% in the control group after the operation, and 92.7±8.9% after the hemo sponge application (r<0.05). The amount of fibrinogen in the control group - 3.1±0.4 g/l, in the age of hemogub application - It was 2.8±0.3 g/l (p<0.05).

Thus, the clinically significant effect of local hemostatic agents on the main indicators of hemostasis in the general blood flow was not determined.

Anemia, erythropenia, increased EChR and other signs of acute blood loss were found in the laboratory parameters of the observed group of patients. Examination of the main clinical-laboratory parameters typical for acute blood loss in the dynamics after the bleeding has stopped allowed us to think about the effectiveness of primary hemostasis in the studied groups of patients. The results of clinical and laboratory examination of patients on the 1st, 3rd and 7th days are presented in tables 4 - 5 .

Table 4

Dynamics of clinical and laboratory indicators in the control group

Indicators	Research results (from the start of treatment)		
	1- milk	3- milk	7- milk
G hemoglobin, g/l	101 ±10.2	105 ± 10.1	108 ± 10.7
Erythrocytes million /ul	2.7 ±0.3	3.4 ± 0.2	3.6 ± 0.4
Whey iron , umol/l	4.8 ±0.5	7.5 ±0.6	10.2 ±1.2
Hematocrit, %	26.6 ± 3.1	31.8 ±2.9	33.1 ±3.8
EEC, mm/ s	33.7 ± 4.5	26.9 ± 2.6	22.8 ±3.5
Arterial systole _ pressure , mm wire . he st.	90.7 ±9.2	P4.2±10.7	128.3^11.4
Load Ch, beats/min.	98.4 ±10.2	94.3 ±9.7	88.7 ±9.1

***- The differences are reliable compared to the indicators of the control group , (r<0.05)**

Table 5

Dynamics of the main clinical and laboratory indicators in the group of patients treated with hemoglobin

Indicators	Research results (from the beginning of treatment)		
	1- milk	3- milk	7- milk
G hemoglobin, g/l	103.3 ± 12.2	107.5 ± 12.4	106.1 ±11.7
Erythrocytes	3.8 ± 0.5	3.7 ± 0.4	3.7 ± 0.4
Whey iron ,	4.6 ±0.3	4.8 ±0.6	5.2 ±1.2*
Hematocrit, %	27.6 ±2.1	27.8 ± 2.3	28.1 ±2.4*
EEC, mm/ s	19.7 ± 3.5	19.9 ±2.6	18.8 ±1.5*
Arterial systole _	100.6 ±10.5	110.8 ±11.2	110.4 ±11.9
Load Ch, beats/min.	99.7 ±10.6	9 8 .1 ±9.9	98.9 ±9.3

***- The differences are reliable compared to the indicators of the control group , (r<0.05)**

As can be seen from the presented tables, early recovery of physiological parameters of red blood cells, as well as normalization of hemodynamic parameters were noted in the groups of patients who used local hemostatic agents, which indicates that there is no continuous bleeding in the early periods after manipulation.

When the condition of the mucous membrane of the nasal cavity was visually assessed a week after the bleeding stopped, swelling of the nasal mucosa, as well as the development of trophic disorders to one degree or another, were noted in some cases. In order to assess the level of impaired mucociliary clearance of the nasal mucosa, 7 days after the bleeding stopped, the patients underwent a saccharin test. The results of this investigation are presented in Table 6.

Table 6

Description of the changes related to the cessation of bleeding of the nasal mucosa 7 days after combined surgical procedures in the nasal cavity in the studied groups of patients

Learned indicators (average values)		1 b group (p = 6 0)	1a group (p = 6 0)
Mucous membrane tumor	Strongly developed	1 6	2
	Not available	0	15
	Average	8	5
Fibrinous vision	Strongly developed	1 4	1
	Not available	1	1 5
	Average	8	3
Trophic changes	Strongly developed	4	0
	Not available	5	17
	Average	4	2
Quick test results (normal 6-8 min.)		29.4 ±3.1 min.	8.6 ±0.9 min.
Pain syndrome during manipulation, according to VASh scores		8.19 ±0.73	3.22 ±0.27

***- The differences are reliable compared to the indicators of the control group , (r<0.05)**

As can be seen from the table, strong trophic changes and swelling of the mucous membrane of the nasal cavity were not detected by the 7th day in the groups of patients treated with local hemostatic agents, while in the control group, where a gauze pad was used, persistent swelling of the mucous membrane and the development of fibrinous necrosis were noted in most cases.

The results of the saccharin test did not show significant changes in the mucociliary clearance of the nasal mucosa in the group of patients who were treated with hemostatic sponges compared to patients who were treated with gauze tamponade. Also, in the group of patients who used local hemostatic agents, a significant decrease in pain was found according to the indicators of the visual-analog scale of pain.

Thus, in the groups of patients treated with local hemostatic agents, complete hemostasis occurred earlier than in the control group, as well as the absence of recurrences of bleeding after manipulation. Undesirable side effects of many tamponades in the form of swelling and damage to the mucous membrane were found in the groups of patients who used gauze tampons, as well as a stronger development of pain syndrome in these patients. There were no complications associated with the application of hemostatic agents to the nasal cavity in the studied group of patients.

CONCLUSION

A comparative hemostatic evaluation of the results of using gauze tamponade and hemo-sponge in patients suffering from nosebleeds showed that the time to stop bleeding was 4.4±0.6 minutes when hemotex was used, and 9.3±0.5 minutes during gauze tamponade. Bleeding relapses were not observed in the groups of patients who used hemobag. The average duration of treatment in the group of patients treated with hemoglub was 6.1±0.9 days, the average duration of manipulation was 7.1±0.9 minutes. On the 7th day after the application of the hemo sponge , swelling of the mucous membrane was not observed, a decrease in the sense of smell and a change in the sense of taste were noted in only 22.7% of patients. A comparative analysis of the received data showed the advantage of using a hemo sponge to stop bleeding in patients with nosebleeds compared to previous tamponade .

Summarizing the obtained data, it can be concluded that the use of new local hemostatic agents with a local effect in patients with nosebleeds allows to increase the efficiency of treatment due to achieving faster and stable hemostasis compared to gauze tamponade, as well as reducing the number of complications and shortening the length of hospital treatment.

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