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Comparative Analysis Of The Results Of The Endoscopic Treatment Of Gastroduodenal Ulcerative Bleeding

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ABSTRACT

The study includes 557 patients with ulcer of the stomach and duodenal intestine complicated by bleeding. The control group was 290 patients, of which 48 patients with active bleeding were performed by standard endoscopic hemostasis techniques, and in 242 cases, when verifying stopping bleeding, endoscopy was limited to the diagnostic step with subsequent conservative patient management. The main group includes 267 patients in addition to endoscopic hemostasis with active bleeding (46 patients), the manipulation was supplemented with the implementation of the proposed method of endoscopic treatment of gastroduodenal bleeding of ulcerative genesis. When revealed bleeding (221 patients), endoscopic intervention was also accompanied by the implementation of the proposed method.

The application of the composite polymer material over the ulcerative defect contributed to a decrease in the frequency of the nearest recurrences of hemorrhagic syndrome from 9.0% to 1.9%, reduce the need to perform operational treatment from 6.6% to 1.1% and levity indicator from 1.7% up to 0.7%, which generally affected the increase in the share of patients discharged without complications from 90.7% to 97.8% and reducing the timing of the hospital phase of treatment.

KEYWORDS

Gastroduodenal ulcerative bleeding, applique, endoscopic hemostasis, "Heprocel"

INTRODUCTION

Despite the fact that recently the general tendency to reduce the incidence of ulcer of the stomach (SU) and the duodenum (DU) is observed, complications of this pathology in the form of bleeding, perforation and stenosis of the gatekeeper remain the current problem of modern health care. Thus, these complications are the cause of almost 150,000 hospitalizations in the United States annually [1]. In turn, it is precisely bleeding that is the most common complication of ulcerative disease ranges from 19 to 57 cases per 100 000 people. For comparison, the perforation of ulcers is developing from 4 to 14 cases per 100 000 people [2]. According to Lolle I et al. it increases to 15.3%, while there were no differences in the results of the treatment of SU and DU [3]. In another systematic review and metaanalysis devoted to the surgical treatment of complications of gastroduodenal ulcers in Africa Peiffer S. et al. (2020) reported that in the structure of all operations, bleeding as the reason occupied the third place (9%) after perforation (41%) and the sample stenosis (22%), with the postoperative mortality in all analyzed studies on average amounted to 6.6%, according to data published after 2000, the growth of this indicator is noted to 9.7% [4].

The priority value as the first line of diagnosis and treatment of gastroduodenal bleeding is allocated by endoscopic technologies. For the present period, various methods differ in the source of bleeding are used, differing in their physical properties and mechanisms of action: thermal (electrocoagulation, argon-plasma coagulation, laser photocoyaging, etc.); Injection (adrenaline alcohol, sclerosant); Adhesive coatings (cyanacrylates, thrombin, fibrin glue) and mechanical (clipping, ligation) [5,6]. According to Barkun A.N. et al, conducted metaanalysis showed that

endoscopic interventions contributed to a decrease in the risk of re-bleeding compared to pharmacotherapy [7]. In the review Fujishiro M. et al, the effectiveness of various endoscopic hemostasis methods is provided. Thus, in randomy studies, the initial hemostasis indicators on average have become about 90% with a recycling frequency of 2-10%. The exception was the injection of adrenaline, in which the frequency of repeated hemorrhage reached 12-30%. According to the results of the study, the authors recommend the combined application of various techniques, for example, injecting and mechanical [8]. Another embodiment of the endohemostasis is the use of various hemostatic powders and polymer adhesive substances, the use of which is characterized by technical simple and safety [9,10]. However, according to Vitali F. et al. Their isolated use with ulcer disease provided primary hemostasis only in 80% of cases, while the frequency of bleeding recurrence rate was 34% [11] by the 30 days of observation [11]. Such a large arsenal of various ways to stop bleeding and in some cases, their low performance indicate the need to continue research in terms of increasing effectiveness of endoscopic techniques, including the introduction of new hemostatic materials into clinical practice.

The analysis of literature indicates that the improvement of the results of the endoscopic treatment of gastroduodenal bleeding of ulcerative etiology is currently related to one of the relevant and to the end of the unresolved problems of modern health care.

MATERIAL AND RESEARCH METHODS

The work is based on the results of the treatment of 557 patients with a peptic DU and stomach disease, complicated by bleeding observed in 2018-2019. In the Andijan branch of the Republican Scientific Center for Emergency Medicine. The formation of groups was carried out according to the requirements for a prospective controlled study. For this, the entire sample of patients with admission was distributed into two groups - the main and control. 290 patients are included in the control group, of which 48 patients with active bleeding were performed by standard endoscopic hemostasis techniques - infiltration hemostasis (0.1% hydrochloride adrenaline solution or 70% solution of ethyl alcohol), and in 242 cases, when verifying stopping bleeding, endoscopy was limited. The diagnostic step with the subsequent conservative leading of

the pacings. In addition to endoscopic hemostasis, in addition to endoscopic hemostasis, in addition to endoscopic hemostasis, with active bleeding (46 patients), the manipulation was supplemented with the execution of the proposed method of endoscopic treatment of gastroduodenal bleeding of ulcerative genesis (appliance of a film-forming polymer made on the basis of the domestic substance "Heprocil" by using a special delivery device introduced in the endoscope channel for the controlled administration and placement of the hemostatic agent over a bleeding erosive-ulcerative defect of the mucous). When revealed bleeding (221 patients), endoscopic intervention was also accompanied by the execution of the proposed method (Table 1).

Table 1

Distribution of patients on research groups and type of treatment of ulcer disease complicated by bleeding

Treatment	Basic group		Control group		Total	
	abs.	%	abs.	%	abs.	%
Endohemostasis	0	0,0%	48	16,6%	48	8,6%
Conservative	0	0,0%	242	83,4%	242	43,4%
Endohemostasis + Applique	46	17,2%	0	0,0%	46	8,3%
Endoapplication	221	82,8%	0	0,0%	221	39,7%
Total:	267	100%	290	100%	557	100%

Depending on the localization of ulcers, patients were distributed as follows. In the DU, 188 patients of the main group were localized, of which 32 patients were with active bleeding and 156 with those who stopped; In the control

group there were 218 patients (36 and 182, respectively). In the

antral sector of the stomach of the ulcer was verified in 79 patients in the main group (of which 14 patients were with active bleeding

and 65 with stopped); In the control group - 72 patients (12 and 60, respectively). In most cases, men received 202 (75.7%) in the main group and 229 (79%) in the control group. More than 80% of patients in both groups were aged

25-60 years. The distribution of patients on the activity of bleeding according to the classification Forrest (1974) is presented in Table. 2.

Table 2

Distribution of patients in the activity of bleeding according to the classification Forrest

Forrest bleeding activity	Groups of patients			
	Basic		Control	
	abs.	%	abs.	%
I-A	11	4,1%	11	3,8%
I-B	28	10,5%	30	10,3%
II-A	55	20,6%	58	20,0%
II-B	76	28,5%	86	29,7%
II-C	85	31,8%	91	31,4%
III	12	4,5%	14	4,8%
Total:	267	100%	290	100%

To carry out an objective prospective controlled study, compared groups were distributed taking into account comparability in all major indicators: age, gender, source and severity of bleeding. The conservative therapy strategy did not differ in the study groups, all patients received a standardized diagram of anti-sized treatment.

RESULTS AND DISCUSSION

In the control group, early recurrence of bleeding was noted in 3 (8.3%) of 36 patients with endohemostasis with active bleeding from the DU. After verification of the stopping bleeding, the recurrence developed in 18 of 182 (9.9%) cases. As a rule, these relapses arose in the first three days. The addition of endoscopy

proposed by the application of the application of the substance "Heprocel" made it possible to reduce the recurrence rate in the main group to 3.1% (in 1 of 32 patients) in a subgroup with active bleeding with endohemostasis and up to 1.9% (in 3 of 188) in a subgroup With stopped bleeding, these values turned out to be significantly better than in the control group ($\chi^2 = 9.996$; $df = 2$; $p = 0.007$).

Endoscopic treatment of bleeding at Yabg also showed the pre-property of the application of the proposed method. Thus, in the control group, early recurrence of bleeding was noted in 1 (8.3%) of 12 patients with endohemostasis with active bleeding and in 4 (6.7%) out of 60 against the background of stopped bleeding and conservative therapy. In turn, there was no relapse in the main group after the

endohemostasis, and after the application against the background of stopped bleeding, the relapse was noted in 1 (1.5%) out of 65 cases (reliability noted due to the small sample in groups). In general, in groups of recurrences noted in 26 (9.0%) cases in the control group and in 5 (1.9%) in the main group. Accordingly, without recurrence of bleeding, it was 264 (91.0%) and 262 (98.1%) of patients ($\chi^2 = 13.306$; $df = 1$; $p < 0.001$).

The frequency of recurrence of hemorrhagic syndrome, depending on the initial activity of bleeding, is presented in Table. 3. In general, the recurrence rate with Forrest I in the control group was 17.1% (7 of 41), while in the main group - 5.1% (2 of 39), with Forrest II 8.1% (19 235) and 1.4% (3 of 216) ($\chi^2 = 13.753$; $df = 3$; $p = 0.004$).

Table 3.

Recycle frequency depending on bleeding activity

Bleeding activity	Basic group			Control group		
	quantity	recurd	%	quantity	recurd	%
Duodenal ulcer						
Forrest I	25	1	4,0%	28	5	17,9%
Forrest II	153	3	2,0%	180	16	8,9%
Forrest III	10	0	0,0%	10	0	0,0%
Stomach ulcer						
Forrest I	14	1	7,1%	13	2	15,4%
Forrest II	63	0	0,0%	55	3	5,5%
Forrest III	2	0	0,0%	4	0	0,0%

In this context, the results indicate not only the improvement of the hemostatic effect due to the application of the Heprocel substance to the surface of the ulcer defect, but also that the good adhesive properties of the polymer contributing to the formation of a protective film also reduced the risk of influence of provoking factors, that is, provided Barrier function.

Reducing the risk of recurrence affected the need to perform surgical treatment of

ulcerative bleeding. With all the sources of bleeding in the control group, 2 (4.2%) of the patient was operated on after endohemostasis, against the background of conservative tactics 17 more (7.0%), only 19 (6.6%) patients. In the main group, only 3 (1.4%) patients were operated on in a subgroup with the proposed substance that stopped bleeding and the applique of the proposed substance, in just a group, the frequency of operational treatment was 1.1% ($\chi^2 = 10.961$; $df = 2$; $p = 0.005$).

Foliages in subgroups with endohemostasis are not marked, against the background of conservative tactics, 5 (2.1%) patients died in the control group and 2 (0.9%) of the patient in the main group.

For a full assessment of the treatment tactics taken, the dynamics of the ulcer process was additionally studied. In both groups, on the background of treatment, regardless of the initial size of the defect, its reliable decrease was obtained, which was verified during the control endoscopic inspection by 3-5 days of

observation. In the main group, with the initial size of the ulcers, less than 1 cm (39 patients) diameter of the defect ($m \pm \sigma$) decreased from 0.67 ± 0.14 cm to 0.52 ± 0.16 cm, while the average difference between these values was ($M_d \pm \sigma_d$) 0.16 ± 0.08 cm ($p < 0.001$). A similar picture was obtained at the initial other sizes. Thus, with an ulcer of 1.0-1.9 cm, the average difference was 0.42 ± 0.12 cm ($p < 0.001$); under ulcers 2.0-2.9 cm This indicator was 0.67 ± 0.15 cm ($p < 0.001$); With ulcers more than 2.9 cm - 1.00 ± 0.39 cm ($p < 0.001$) (Table 4-5).

Table 4.

The size of the ulcer defect ($m \pm \sigma$) in the dynamics in the main group

Size of ulcers (cm)	N	diameter before treatment	diameter for 3-5 days	$M_d \pm \sigma_d$	t- criterion.	
					value	P
< 1,0	39	$0,67 \pm 0,14$	$0,52 \pm 0,16$	$0,16 \pm 0,08$	12,64	<0,001
1,0 - 1,9	166	$1,39 \pm 0,23$	$0,97 \pm 0,42$	$0,42 \pm 0,12$	41,07	<0,001
2,0-2,9	47	$2,36 \pm 0,18$	$1,70 \pm 0,27$	$0,67 \pm 0,15$	28,55	<0,001
> 2,9	15	$3,20 \pm 0,17$	$2,20 \pm 0,31$	$1,00 \pm 0,39$	8,20	<0,001
Average	267	$1,52 \pm 0,64$	$1,07 \pm 0,48$	$0,44 \pm 0,24$	28,96	<0,001

Note: M_d - average difference; σ_d - standard deviation of the difference

Table 5.

The size of the ulcer defect ($m \pm \sigma$) in the dynamics in the control group

Size of ulcers (cm)	N	diameter before treatment	diameter for 3-5 days	$M_d \pm \sigma_d$	t- criterion.	
					value	P
< 1,0	51	$0,65 \pm 0,14$	$0,56 \pm 0,18$	$0,09 \pm 0,08$	8,09	<0,001
1,0 - 1,9	174	$1,38 \pm 0,21$	$1,12 \pm 0,22$	$0,26 \pm 0,09$	35,07	<0,001
2,0-2,9	49	$2,29 \pm 0,22$	$1,86 \pm 0,27$	$0,43 \pm 0,21$	13,01	<0,001
> 2,9	16	$3,14 \pm 0,16$	$2,58 \pm 0,26$	$0,52 \pm 0,32$	5,67	<0,001

Average	290	1,45±0,63	1,19±0,52	0,26±0,17	24,02	<0,001
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Note: M_d - average difference; σ_d - standard deviation of the difference

In the control group, at the initial size of the ulcers, less than 1 cm (51 patients) diameter of the defect ($m \pm \sigma$) decreased from 0.65 ± 0.14 cm to 0.56 ± 0.18 cm, while the average difference between these values was ($M_d \pm \sigma_d$) 0.09 ± 0.08 cm ($p < 0.001$). Under ulcers 1.0-1.9 cm The average difference was 0.26 ± 0.09 cm ($p < 0.001$); under ulcers 2.0-2.9 cm This indicator was 0.43 ± 0.21 cm ($p < 0.001$); For ulcers more than 2.9 cm - 0.52 ± 0.32 cm ($p < 0.001$).

Despite the fact that in both groups, a reliable decrease in the ulcerative defect was obtained against the background of treatment, it should still be noted that when compared to the obtained dynamics between groups, more expressive reparative processes were verified

in the main group ($p < 0.05$). The average size of the ulcers in the main group decreased from 1.52 ± 0.64 to 1.07 ± 0.48 cm (the average difference over the dynamics was 0.44 ± 0.24 cm), in the control group it changed from 1.45 ± 0.63 to 1.19 ± 0.52 (average difference - 0.26 ± 0.17 cm). The data obtained show that with the same tactic of conservative therapy, the addition of therapeutic endoscopy of the applique of the domestic polymer material made on the basis of the Substance "Heprocil" ensured the improvement of reparative processes due to the prolonged protective properties of the film-forming polymer. Consolidated treatment results are presented in Fig. 1.

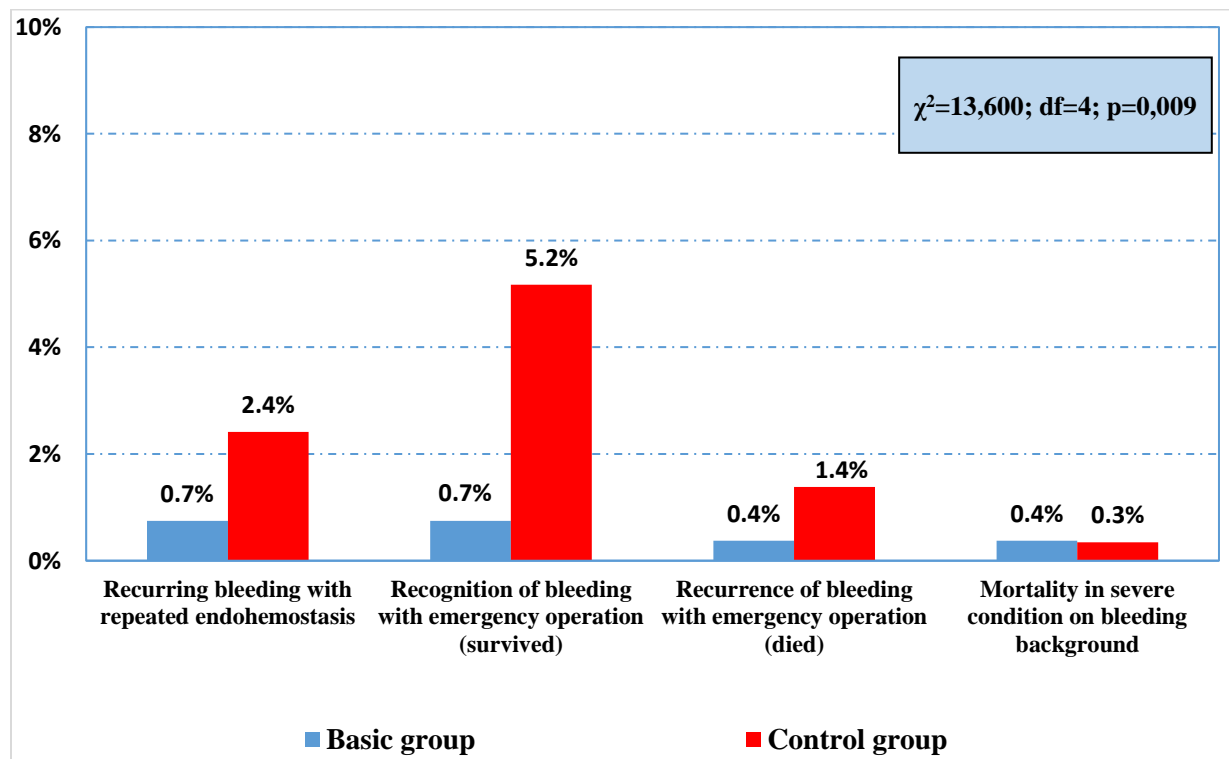


Fig. 1. Distribution of patients on the outcome of the recurrence and cause of mortality

Improving the tactical and technical aspects in bleeding from the DU and the stomach ulcers made it possible to generally affect the duration of the hospital phase of treatment. The regression of the symptom complex characteristic of the ulcerative disease with an absolute effect on the achieved hemostasis has reduced the stage of stationary treatment in a subgroup with an endogemostase from 6.5 ± 1.5 days in the control group up to 4.9 ± 1.4 days in the main group ($T = 5.32$; $p < 0.05$), in a subgroup with conservative patient management from 5.7 ± 1.3 to 4.1 ± 1.6 days ($t = 11.31$; $p < 0.05$) and in Overall in groups from 5.8 ± 1.4 to 4.2 ± 1.6 days ($t = 12.22$; $p < 0.05$). The benefits of the proposed technique make it possible to recommend it for active use in the urgent surgery of the ulcerative disease of the stomach and DU, complicated by bleeding.

CONCLUSION

A prospective study of the effectiveness of the proposed method of endoscopic hemostasis in clinical practice showed that the application of the composite polymer material over the ulcerative defect contributes to a reduction in the frequency of the nearest recurrence of hemorrhagic syndrome from 9.0% to 1.9% ($p < 0.001$), reduce the need to perform operational treatment with 6, 6% to 1.1% ($p = 0.002$) and, accordingly, the rate of mortality from 1.7% to 0.7%.

The use of domestic composite material made it possible not only to improve the hemostatic efficacy of endoscopic treatment of gastroduodenal bleeding, ulcerative etiology, but also provided a more pruned reparative effect ($p < 0.05$) due to the prolonged protective properties of the film-forming polymer, which generally affected the increase in the share of discharged no complications

Patients with 90.7% to 97.8% ($p < 0.001$) and reducing the timing of the hospital phase of treatment from 5.8 ± 1.4 to 4.2 ± 1.6 days ($p < 0.001$).

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