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TACTICS OF TREATMENT OF GASTRODUODENAL BLEEDING

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ABSTRACT

This study will present a retrospective analysis of 1102 patients with bleeding from chronic stomach and duodenal ulcers. A Bleeding from duodenal ulcers was present in 973 cases (88%), while stomach ulcers were the reason of bleeding in 118 (11%) cases, concomitant ulcers were diagnosed in 11 cases (1%). Analysis was conducted a combination of two medical diagnostic methods: active-expectant tactics (for 469 patients) and active-individualized (for 633 patients). Achieved results alongside with pros and cons of both tactics are described. It is established that, nowadays, an active individualized method should be used for the treatment of patients with bleeding from chronic stomach ulcers and duodenal ulcers. The results of treatment of patients with bleeding stomach and duodenal ulcers directly depend on the outcomes of treatment of patients with bleeding relapse. The most trustworthy and objective method of controlling the process of hemostasis establishment in an ulcer is the dynamic endoscopy.

KEY WORDS: peptic duodenal ulcer, peptic stomach ulcer, bleeding, endoscopic hemostasis, dynamic endoscopy, dynamic endoscopy, bleeding relapse.

INTRODUCTIOON

The problem of gastro-duodenal ulcerative bleeding is one of the most relevant in contemporary urgent surgery [1,2,3]. The mortality rate, which fluctuates from 5% to 15%, reaching 30%-40% in case of bleeding relapse, and it does not have a tendency to decrease [1, 2].

The implementation of endoscopic research methods into gastroenterology granted the ability of visual evaluation of the bleeding origin, its character, and intensity. Moreover, it questioned if the expediency of conducting a surgery at the peak of bleeding, having shifted the surgery conducting time up to 24-48-72 hours, or maybe even more, thus switching them from category of urgent to less urgent or even deferred, which in case of good preparedness of patient allows conducting stomach resection as the most viable surgery.

An invaluable contribution in decision of tactical questions of gastro-duodenal bleeding treatment was made by J. Forrest in 1974. He created an endoscopic classification of gastro-duodenal bleeding, and, on its base, created a special algorithm of treatment tactics for endoscopist and surgeons [4].

The analysis of reasons of adverse outcomes of treating patients with acute gastro-duodenal ulcerative bleedings shows that one of the perspective directions for result improvement are upgrading the methods of non-surgical hemostasis and prevention the bleeding relapse. Endoscopic hemostasis and further monitoring of its effectiveness can significantly broaden the abilities of surgeons in achieving a stable hemostatic effect.

Organizational aspects play a significant role in the treatment of ulcerative bleedings,—which are based on collaboration of surgeon, endoscopist, and anesthesiologist-resuscitator, as well as their technical equipment support. An Individualized approach to treatment of patients with gastro-duodenal ulcerative bleedings is based on clinical endoscopic evaluation of the bleeding origin, the severity of blood loss, somatic state, and concomitant pathology of the patient. Currently, the leading clinicians agree with the fact that increasing effectiveness of treatment of patients with acute ulcerative bleeding depend on the solution of the most significant problem- hemostasis stability. The most important, due to clinical significance, remains the discussion of leading components of treatment tactics of gastro-duodenal bleedings, which are crucial in determining the indications, contraindications, and the time frames of conducting a surgery [5].

The aim of the research is to conduct a retrospective analysis of treatment results of patients with chronic stomach ulcer bleeding and chronic duodenal ulcer bleeding, to determine the diagnostic and treatment abilities of endoscopy, to found a viable option for surgical treatment methods.

MATERIAL AND METHODS

Based on the history of medical records, the analysis of the results of treatment of 1102 patients with bleedings of chronic stomach and duodenal ulcers was conducted. The study included 74,7% of men, 25,3%

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women. The average age of patients was 54 years old. Duodenal ulcers were present in 973 cases (88%), stomach ulcers were the reason of bleeding in 118 (11%) cases, combined ulcers were diagnosed in 11 (1%) cases.

RESULTS AND DISCUSSION

For treatment of ulcerative bleedings in out clinic, following methods of medical treatment were used:

Active-expectant (469 cases). It is known that this method, having replaced the expectant tactics, proved more progressive result due to the increased number of indications for surgical treatment and the implementation of the endoscopy. Its special feature is the ability to stop a bleeding by conservative methods. If it is impossible to stop the bleeding, or a relapse occurred, it was recommended to conduct a surgery during the peak of bleeding. According to the points of followers of this tactics, the advantages are that after a hemostasis therapy, the bleeding stops in most cases, and a planned surgery is less dangerous for a patient and gives better results. Nevertheless, this method does not include the problem of bleeding relapse, and the usage of endoscopic hemostasis is limited.

Active-individualized tactics (633 cases). This method is currently universally recognized and is used by most surgical schools. It combines vast medical-diagnostic abilities of endoscopy, forecasting of bleeding relapse, individualized approach in questions of time frames and dimensions ofsurgery. Nevertheless, in our opinion, it has a disadvantage: no clear indications and time frames for repetitive endoscopy are determined. It is obvious that the risk of bleeding relapse in cases F-IA, F-IB (after hemostasis),F-IIA, F-IIB, F-IIC, F-III is different, and the same interval cannot be used for all of them. Otherwise, the diagnostics of relapse will not be conducted on time. We have done our best in order to remove this disadvantage by developing a test algorithm where we represented clear time standards of conducting repetitive endoscopies depending on presence of hemostasis in the ulcer crater (according to Forrest classification). The treatment of patients of this group was conducted according to the developed algorithm with mandatory primary endoscopic hemostasis, prediction of bleeding relapse (referring to our scale), conduction dynamic endoscopy, executing early surgeries in order to prevent relapse.

When a patient was registered with symptoms of gastrointestinal bleeding, the patient was put into a shock chamber of the front desk, where examination is conducted, and the question of further treatment tactics is solved. Blood test, urine test, coagulogram and blood biochemistry are taken and then examined. X ray examination of chest, esophagogastroduodenoscopy, ultrasound of abdomen, examinations of related specialists are conducted.

It should be highlighted that the first endoscopy has a very high diagnostic informational content. With its help the origin of bleeding was diagnosed in 98,6% cases. Bleeding duodenal ulcers were localized on the front side in 378 cases (38,8%), on the lower side in 206 cases (21,2%), on the back side in 167 cases (17,2%), and on the top side in 120 cases (12,3%). “Kissing ulcers” were diagnosed in 81 cases (8,3%), and ulcers of “post bulbar” duodenal department were diagnosed in 21 cases (2,2%). Stomach ulcers, complicated by bleeding in 43 cases (36,4%) were localized in the body by small curvature, in 39 cases (33,1%)- in the corner part of the stomach, in 29 cases (24,6%) in the piloantrial side, in 7 cases (5,9%) in sub cardinal side.

Bleeding gastric ulcers are larger than duodenal ulcers (Table 1). Correct establishment of the size of the ulcer during primary endoscopy procedure was possible in 93.7% of patients.

Table 1. Ulcer classification according to size

Size, sm	Gastric ulcer		Duodenal ulcer	
	Abs.	%	Abs.	%
Up to 0,5	6	5	247	25,2
0,6-1,0	33	27,3	562	57,3
1,1-2,0	73	60,3	154	15,7
More than 2,0	9	7,4	18	1,8
Total	121*	100	981*	100

Note. *Amount shown with combined ulcers included, n =11(1%);

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Endoscopic signs of a bleeding that already took place or ongoing bleeding in the ulcer were characterized according to the Forrest classification (1974), with F-IA bleeding detected in 33 cases (3%), F-IB in 55 cases (5%), F-IIA in 331 cases (30%), F-IIB in 353 cases (32%), F-II C in 242 cases (22%), FIII in 88 cases (8%).

The severity of blood loss was evaluated according to the classification of P.G. Bryusov (1986). Mild loss of blood was observed in 62% of patients, moderate in 19,6%, severe in 14,2%, and extremely severe in 4,2%.

G.A. Ryabov's (1979). classification was used to characterize the severity of hemorrhagic shock. Mild shock was detected in 15,1% of patients, moderate and severe - in 6,2 and 1,7%, respectively. In 77% of patients, there were no signs of shock upon registration.

Having studied the relationship between the severity of blood loss and the development of a shock state, we found that mild blood loss was accompanied by shock in 17,1% of cases, moderate in 8,9%, severe in 40,0% and extremely severe in 58,4%, i.e. there was a definite direct correlation between the severity of blood loss and the development of a shock state.

Various methods of endoscopic hemostasis were used to stop bleeding or strengthen hemostasis in ulcers with Forrest IA, IB, IIA, IIB (Table 2).

Table 2. Endoscopic hemostasis

Bloodloss intensity	Endoscopic hemostasis method			Total
	Diathermocoagulation	Diathermocoagulation and sclerosis	Sclerosis.	
Forrest IA	30	3	-	33
Forrest IB	51	4	-	55
Forrest IIA	59	55	4	118
Forrest IIB	17	7	26	50
Total:	157(61,3)*	69(27)*	30(11,7)*	256

Note. * % Is indicated in parentheses

Failures in carrying out endoscopic hemostasis are associated with the inconvenient localization of the source of bleeding, expressed by its intensity and the restless behavior of the patient.

After accomplished performance of the endoscopy, the topical diagnosis of the source of bleeding and the endoscopic hemostasis, patients were prescribed a standard conservative antiulcer, hemostatic and are placement therapy. Furthermore, the treatment tactics were chosen.

In the context of active-expectant treatment tactics, a high general and postoperative mortality rate among patients with recurrent bleeding is noteworthy (Table 5). Despite the fact that we have a little amount of digital material and the presentation of the mortality rate is not very correct, this data clearly emphasizes the special importance of the relapse problem. Such a high mortality rate is associated with the late diagnosis of recurrence of bleeding, the delayed performance of surgical interventions against the background of shock, blood loss, and a concomitant pathology. A Timely diagnosis of relapse, according to clinical data, directly depends on the practical preparedness of the surgeon, his attentiveness, the ability to correctly analyze the patient's symptoms. Due to the fact that in the patient's body the processes of compensation for acute primary hemorrhage continue, the clinical signs of recurrence of bleeding become mild, and the establishment of the fact of recurrence is usually belated. Analyzing the clinical features of the development of bleeding recurrence in 89% of patients, we noted the presence of the so-called "bright gap" - an improvement in the condition after primary replacement and hemostatic therapy. The appearance of a "repeated wave" of deterioration is usually associated with the development of relapse. Its first clinical manifestations were an increase in weakness and dizziness (81%), tachycardia and hypotension (76%), nausea and vomiting of "coffee grounds" (68%), cold sweat and severe pallor of the skin (52%), vomiting of red blood with the development of a collaptoid state (46%), the allocation of "coffee grounds" or scarlet blood by the probe (24%). Based on the data obtained, we had to develop mechanisms for the prevention of recurrence of bleeding, its early detection, and optimal treatment tactics.

Afterwards, in order to optimize the treatment of patients, the tactical approach was changed to actively individualized one. In order to strengthen the hemostasis in an ulcer, endoscopic hemostasis began to be used more widely, specifically for early detection of patients with a high risk of recurrence of bleeding, and

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the "timely" implementation of prophylactic prophylaxis; with respect to recurrence of bleeding, a scale for predicting bleeding recurrence was developed, which includes the following parameters: age, severity of blood loss, severity shock, size of the ulcer, concomitant pathology, localization of the ulcer, endoscopic signs of ongoing and sustained bleeding in the ulcer in accordance with the Forrest classification (1974), the level of plasma tolerance towards heparin. By summing the scores, a certain coefficient was obtained, indicating the degree of risk of bleeding recurrence. The sensitivity of the scale is 81,8%, the specificity is 99,1%. Patients with a high risk of bleeding recurrence were operated on urgently until relapse in conditions of stable hemodynamics.

In order to achieve the most complete, constant and objective control over the process of establishing hemostasis in the ulcerous bottom, we have set clear deadlines for repeated endoscopic examinations (advanced dynamic endoscopy) depending on the initial characteristics of the intensity of bleeding in the ulcer according to Forrest (1974). This made it possible to completely exclude the subjective approach of surgeons to diagnose the onset of recurrence of bleeding. The doctor must repeat the endoscopic examination within the specified time, regardless the patient's condition. Endoscopic monitoring: F-IA (after successful endoscopic hemostasis) - after 6 hours; F-IB (after successful endoscopic hemostasis) - after 8 hours; F-IIA - after 12 hours; F-IIB - after 24 hours; F-III - after 72 hours. During treatment, on average, from 2 to 4 studies are performed, which, in combination with repeated endoscopic hemostasis, is quite enough to solve the question: to operate on the patient or conduct conservative therapy. It should be noted that the endoscopic service in our center works around the clock.

Setting the deadlines for repeated endoscopic examinations, we tried to cover the periods that are dangerous for the development of recurrence of bleeding as much as it was possible. Therefore, a relapse of bleeding from ulcers after endoscopic hemostasis against the background of F-IA, IB in all cases arose on the first day of treatment (control after 6-8 hours). The resumption of bleeding from ulcers on the background of F-IIA and F-IIB, respectively, in 51 and 40%, occurred in the first two days, although relapses were noted up to 7 days of inpatient treatment (control after 12-24 hours). There were relapses of bleeding from ulcers during primary endoscopy in which F-IIC or F-III was exhibited, which is most likely due to an erroneous interpretation of the class of hemostasis or aggravation of necrosis in the ulcer bottom with arrosion of the vessel against hypovolemia, shock, hypoxia and other reasons. However, all relapses occurred after 3-4 days of hospital stay (control after 72 hours).

The main points in the treatment of ulcerative bleeding, we have formulated as follows:

• Mandatory primary endoscopic hemostasis for bleeding from ulcers classified by Forrest (1974) as IA, IB, IIA, IIB. If it is not possible to stop the bleeding by the endoscopic method, an emergency surgery is performed within 2 hours from the moment the patient enters the hospital.

• Predicting the likelihood of a recurrence of bleeding. At a "low" risk of relapse, dynamic endoscopic examinations are indicated to monitor the process of establishing hemostasis in an ulcer. If necessary, “preventive” endoscopic hemostasis is repeated. Surgical tactics are determined strictly individually according to the endoscopic picture.

• In the case of a "high" risk of appeared of recurrence of bleeding, an assessment is made of the patient's somatic status based on the classification of the American Society of Anesthesiologists (ASA). Patients assigned to ASAI-III classes (i.e., compensated condition) undergo surgical intervention urgently (from 2 to 24 hours). Patients whose somatic status is assigned to ASA IV-V classes are subject to conservative therapy under the control of dynamic endoscopy with repeated endoscopic hemostasis. Surgery is indicated as an emergency in the presence of signs of relapse and inefficiency of endoscopic hemostasis.

• When the endoscopic picture is stabilized at the Forrest IIC-III stage, patients are subject to further examination in order to identify combined complications of peptic ulcer, delayed surgery or discharge for outpatient treatment at the place of residence.

According to the timing of the implementation of surgical interventions and indications for them, we divide into the following groups.

1. Emergency operations (within 2 hours)

1.1. Continued bleeding F-IA, F-IIB with the inefficiency of endoscopic hemostasis.

1.2. Diagnosed with relapse of bleeding:

1.2.1. After primary endoscopic hemostasis for bleeding from ulcers F-1A, 1B, after 6, 8 hours there bleeding F-IA, F-IB;

1.2.2. In ulcers classified after primary endoscopy as F-IIA, F-IIB, on the control study after 12 and 24 hours has bleeding place F-IA, F-IB;

1.2.3. In ulcers classified after primary endoscopy as F-IIC, III, on the control study after 72 hours there is F-IA, IB, IIA.

2. Urgent operations (from 2 to 24 hours):

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2.1. High risk of recurrence of bleeding according to the results prediction in patients with ASA 1-3;

2.2. Preservation in dynamics at control endoscopic examinations of signs of unstable hemostasis;

2.3. In ulcers classified on primary EGDFS as F-IIC, F-III, on control endoscopy after 72 hours there is F-IIB.

3. Deferred operations (2-7 days)

3.1. Achieving a stable endoscopic picture of F-IIC, F-III in patients with ASA 1-3.

3.2. The presence of combined complications of peptic ulcer (stenosis, penetration, malignancy, etc.).

Regarding the timing of surgical intervention and indications to them, different opinions are expressed. We presented our version of the distributions, based on the data of dynamic endoscopy. If the patient did not have indications for performing emergency and urgent surgical interventions, then this time is enough for a full correction of hemodynamics and somatic condition. In the presence of combined complications, a long ulcerative history with large and gigantic ulcers, several bleeding in the anamnesis, indications for intervention should be decisively put in the immediate period of the patient's stay in the hospital (delayed operations 2-7 days). The indicated time standard for delayed interventions of 2-3 or 4-6 weeks is not entirely successful, since the patient needs help during the current hospitalization, and it is not possible to predict the course of peptic ulcer with the possibility of developing repeated fatal bleeding immediately after discharge from the hospital. The absence of an ulcerative history, the presence of first bleeding, the small size of the ulcer, positive endoscopic and clinical dynamics can serve as the basis for abstaining from the operation at present and discharging the patient from the hospital with recommendations for multicomponent conservative anti-ulcer therapy, monitoring the effectiveness of treatment using endoscopy, and taking to the dispensary registration with a gastroenterologist with anti-relapse treatment in spring and autumn.

Surgical interventions were performed in 231 (21%) patients (Table 3). We prefer gastric resection, the advantages of which are the reliability of stopping bleeding and a small percentage of recurrence of peptic ulcer in the long term. The most unpleasant drawback is the danger of the development of insolvency of the duodenal stump, according to our data, occurred in 3,9% of cases. With duodenal ulcers with localization on the anterior wall, organ-preserving interventions are indicated. However, the possibility of using emergency vagotomy with its inherent disadvantages somewhat limits their use. We used these interventions in people with high operational and anesthetic risk, severe concomitant pathology, operated on against the background of ongoing bleeding, shock, severe blood loss. In especially severe cases, palliative interventions were used (9,1%).

Table 3. The nature of the surgical procedures performed

Surgery type	Surgery method	Stomach ucler	Duodenal ucler	Total	
Resection Methods	Resection of 2/3 of the stomach according to Billroth I	39	86	125	182 (78,8)*
	Resection of 2/3 of the stomach according to Billroth II	8	35	43	
	Subtotal gastrectomy	14	-	14	
Vagotomy, organ-preserving operations	Vagotomy, excision, pyloroplasty according to Mikulich	-	13	13	28 (12,1)*
	Vagotomy, flashing pyloroplasty according to Finney	-	15	15	
Palliative surgery	Excision of an Ulcer	7	-	7	21 (9,1)*
	Gastroduodenotomy + flashing	-	14	14	
Total		68	163	231	100

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Note. * % Is indicated in parentheses

The incidence of postoperative complications was 28,6% (Table 4). The dependence of the number of complications on the timing of surgical interventions was noted. A high proportion of pulmonary complications in the overall structure is associated with surgical interventions against the background of a "shock lung", massive blood transfusions, which ultimately manifests itself in pneumonia and other pulmonary problems.

A comparative analysis of two treatment periods (Table 5) showed the great progressiveness of the actively individualized approach, which emphasized a particular importance of the problem of recurrence of bleeding, as the main component and fully determines the overall results of treatment of patients, with bleeding from chronic ulcers of the stomach and duodenum.

Table 4. Postoperative Complications

The Nature of Complications	Emergency Surgeries (n=24)	Urgent Surgeries (n=80)	Deferred Surgeries (n=127)	Total (n=231)
Suture Deficiency	5	3	1	9(3,9)
Wound Suppuration	6	3	6	15(6,5)
Pancreatitis	-	1	1	2(0,9)
Pneumonia	4	19	13	36(15,6)
Myocardical Stroke	1	2	1	4(1,7)
Total	16(66,7)	18(22,5)	22(17,3)	66(28,6)

Note. * % Is indicated in parentheses

Table 5. The results of the treatment of patients with bleeding gastroduodenal ulcers

Indicator	Actively Expectant Tactics (n=469)		Actively Individualized Tactics (n=633)		Generalized data (n=633)	
	Abs.	%	Abs.	%	Abs.	%
Frequency of use of Endoscopic Hemostasis	34	7,2	222	35	256	23,5
Bleeding Recurrence Rate	38	8,1	28	4,4	66	6
Postoperative mortality among patients with relapse	7 (23)*	30,4	2 (17)*	11,8	9 (40)*	22,5
Total mortality among patients with relapse	15	39,5	3	10,7	18	27,3
Postoperative mortality with ulcerative bleeding	7 (104)*	6,7	6 (127)*	4,7%	13 (231)*	5,6
Total mortality with ulcerative bleeding	18	3,8	14	2,2	32	2,9

Note: *- the total number of operated patients is indicated in parentheses

CONCLUSION

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1.Currently, in the treatment of patients with bleeding from chronic ulcers of the stomach and duodenum, an actively individualized therapeutic tactics should be used, with the maximum use of the possibilities of diagnostic and therapeutic endoscopy, prediction of relapse of bleeding, an individual approach to determining indications and timing of surgical interventions.

2.The results of treatment of patients with bleeding ulcers of the duodenum and stomach directly depend on the outcome of treatment of patients with recurrent bleeding.

3.The most reliable and objective method of controlling the process of establishing hemostasis in an ulcer is dynamic endoscopy, which allows you to diagnose a recurrence of bleeding in time, if necessary, reapply endoscopic hemostasis, and promptly give indications for surgery.

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