

# Determination of treatment tactics for gastroduodenal ulcer bleeding in coronary heart disease

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**Abstract:** *The computer program developed by us for choosing the tactics of treating patients with UGDK combined with various forms of coronary heart disease most fully meets not only the requirements of practical emergency medicine, but also those of modern evidence-based medicine.*

*A good example of this is the presented case of clinical observation, which convincingly indicates that the use of the computer program developed by us to choose the tactics of treating UGDK combined with various forms of coronary heart disease allows us not only to accurately establish the clinical diagnosis, but also to choose the most appropriate treatment tactic.*

**Keywords:** *gastroduodenal ulcer bleeding, coronary heart disease, emergency medicine, computer program.*

The achieved success in treatment of patients suffering from bleeding from gastric and duodenal ulcers, due to the introduction of modern diagnostic technologies, new anti-epic drugs, allowed to reduce the lethality on the average up to 10%, which is confirmed by numerous domestic and foreign publications [4, 8, 15].

It should be noted that these indicators refer mainly to middle-aged and young patients. In older age group patients with a large number of concomitant diseases, the problem of ulcer bleeding treatment is far from being solved.

Among concomitant diseases, against the background of which NGDK is particularly severe, ischemic heart disease (IHD), in its modern version, including unstable angina pectoris, acute coronary syndrome (ACS) with and without ST rise, as well as acute myocardial infarction take a special place [3, 5, 6, 11, 21].

In cases of combined development of these nosologies there is a mutually binding influence of one pathological process on the other, which leads to high lethality, which is from 37 to 70% in conservative and up to 90% in surgical treatment of similar patients [1, 7, 16, 17, 20].

It is obvious that the provision of effective emergency medical care to such patients requires an assessment of the severity of their general condition by predicting the category of severity of current combined pathologies [2, 3, 9, 10, 12, 13, 14, 18, 19, 22].

However, although this provision is recognized by virtually all literary authors, to date there are no clear criteria for both assessing the severity of the JDTC combined current and various forms of CHD and the choice of adequate treatment tactics. Unfortunately, the criteria available in the literature are unfortunately of a dispersed nature and are mainly based on hemodynamic indicators, which does not allow a comprehensive, more holistic assessment of the state of such patients.

In this connection the aim of the present research was the development of computer program for choosing the tactics of treatment of ulcerative gastroduodenal bleeding in case of coronary heart disease.

**Research material and methods.**

To create a computer program for choosing treatment tactics, we first developed an integral scale for prognostication of the category of severity of the course of JGDK, combined with various forms of CHD, which was later supplemented by data concerning the volume of various treatment manipulations.

These therapeutic data included traditional and advanced conservative therapy regimens, traditional and newly developed endoscopic hemostatic interventions. In addition, the list of therapeutic manipulations included palliative and radical surgical interventions with indications and timing, as well as the necessary preoperative intensive care.

All this various therapeutic arsenal, in independent or combined versions, in the developed computer program had to get its place and the appropriate sound depending on the prognosis data of the category of severity of the current of the existing combined pathologies - JGDK and IBS determined by an integral scale.

To put it another way, it meant using a computer program to create the possibility, firstly, to detect in a series of severe combined pathologies prevailing changes to be corrected, secondly, to establish the volume and types of correction methods, and thirdly, to determine the limits of possibilities of the latter for timely rotation of one treatment method to another.

**Discussion of the results obtained.**

When performing this rather complex task, the computer program being created, apart from the gravity category itself, was oriented by us to a specific sum of points accumulated by the integral scale in each clinical situation. In our opinion, only the application of this principle, with the help of a computer program, creates an opportunity to cover and display a wide range of treatment options for patients with NGDK combined with various forms of CHD. The next stage of our research was a cybernetic interpretation and processing of the results obtained, which was expressed in the form of creation of a computer program for the choice of treatment tactics for patients with NGDK combined with various forms of ILIs (Fig. 1).

Figure 1: Computer program for the choice of treatment tactics for patients with JHDK combined with various forms of CHD.

The program consists of 2 diagnostic and 1 tactical stages:

1. stage of clinical diagnostics. At this stage, data are collected from general clinical and laboratory and instrumental studies. It should be noted that in case of unstable hemodynamics patients are examined against the background of anti-shock measures and intensive conservative therapy.

2) Stage of data entry into computer program. In this case, collected clinical and laboratory instrumental parameters of patients by practicing physicians are entered into the computer program accordingly.

3. Tactical stage. The computer program, based on the above data, performs automatic calculation and solves the question about the variant of medical manipulations (volume and nature of conservative therapy, types of endoscopic methods of hemostasis, timing and specific nature of surgical interventions, etc.).

We have received patent No. DGU 07622 of the Patent Office of the RU from 24.01.2020 for this computer program.

The distinctive feature of the computer program we have created is that it greatly simplifies the whole procedure for a practical physician, who is required only to enter the required initial parameters. Then the program automatically calculates the accumulated specific points, indicating the category of severity of the course and the recommended type, and the amount of necessary therapeutic manipulations of patients with JGDK combined with various forms of CHD in a particular clinical situation.

It should be noted that the computer program for the choice of treatment tactics for patients with JHDK combined with various forms of CHD is simple enough to use and is available to any practical physician. This, firstly, makes it possible to use it at all levels of the emergency medical care system, including branches and subbranches of RCCEMP, and secondly, to exercise computer control over the dynamics of the treatment process.

As an example of the application of this computer program in the treatment of JGDK patients with CHD we present the following case of clinical observation:

Patient Kashapova M., No. IB:33312/2104, 69, was admitted to the clinic with complaints of burning pains of the backbone, shortness of breath, feeling of air shortage, dry mouth, vomiting, general weakness. In the history of many years suffers from hypertension, CHD, six months ago she underwent OIM, treated inpatiently, then a coronography with 2 stents. Subsequently, she took double antiaggregant therapy. No history of ulcers. On the 6th day of treatment in the emergency cardiology department on the background of anticoagulant and antiaggregant therapy the patient got nausea and vomiting of coffee gooses. The patient's condition progressively worsened, weakness increased. In this connection, the patient was transferred to the surgical resuscitation department after the examination of the surgeon on duty.

*The overall condition of the patient at the time of admission is serious. Skin and visible mucous pale. Patient with medium fatness, peripheral lymph nodes not enlarged. Heart tones muffled pulse 112 beats per minute rhythmic, AD 70/50 mmHg. Lungs have weakened vesicular respiration on both sides. Pulmonary sound is determined at percussion, no painfulness at palpation of chest. Tongue is dry, covered with white plaque. The stomach is soft, painless on palpation. Peristalsis of the intestine is listened to. The chair is tarred, the urination is not impaired.*

*Patient emergency produced EFGDS, which found an acute ulcer in the area of the stomach body. The latter is covered with a loose, red clot, from under which blood is leaking (Fig. 2).*



*Figure 2: Patient Kashapova M., and / or number 33312/2104 EGFDS. Acute stomach ulcer. Donkey bleeding on Forrest 1B.*

*Blood tests: hemoglobin - 67.0 g/l, erythrocytes - 2.3 million, leukocytes - 9.7 thousand p/a - 2%, s/a - 84%, o/white - 52, bilirubin - 17.8, direct - 2.3, diastase of blood - 27, FB "A" - 3.4 mmol/l, PIT - 66%.*

*In order to clarify the diagnosis, the patient was made Echo-KG, at which it was found the presence of hypokinesia sites with a decrease in myocardial contractility, a decrease in FS up to 53%, EO up to 101 ml, an increase in CSR 81 ml and CMR 189 ml.*

*The study of KFC, LDH and troponin in the blood shows a moderate increase. The patient was diagnosed with acute (medicinal) stomach ulcer. Donkey. Bleeding on Forrest 1B. Hemorrhagic shock 2 st. Sop. I.C.S. Oxis without lifting ST.*

*When you enter all the data on the patient's condition in the computer program was established, the prognosis of the gravity of the flow of NGDK with ISF was 37 points, which corresponded to the third category of gravity. The programme recommended an improved conservative treatment scheme with a new endoscopic hemostasis (Fig. 3).*

*The patient on the background of the improved conservative therapy scheme was carried out a new method of endoscopic bleeding stop (autoplasm + 40% - glucose solution). The bleeding stopped. The patient's condition has stabilized.*

Patient	Minnigul Kashapova	Date of birth	1951
Medical history №	33321/2104	Date of examination	30.07.2020

  

Age =	66-75	EF (%) Indicator =	35 - 50
Consciousness =	Torpor, sopor	SV Indicator(ml) =	40,0 - 60,0
Systolic AP (mm Hg) =	55-69 or 106-120	Total sum scores =	37
Pulse (b/min) =	70-99 or 151-169	Severity degree =	third
Respiration rate/min =	15-24 or 56-60	<b>Recommendations</b>	
Hb (mg/l) =	60 - 84	Improved conservative therapy + autoplasm (new endoscopic method of hemostasis)	
Platelets (thous.) =	100-130	<b>In recurrent ulcerative hemorrhage</b>	
Hematocrit in the blood (%) =	from 25 to 35	Repeated endoscopic hemostasis - in inefficiency - operative interventions of radical character	
Blood PTI (%) =	30-50	CLEAN	
Blood EF"A"(mmol/l) =	< 3,0	SEAL	
Blood urea (mmol/l) =	7,0 - 28,0	exit	
Algover Index =	1,5 - 2,0		
Hemostasis by Forrest =	F 2A		
Blood loss (ml) =	more 1 000		
Myocardium change degree =	impairment		

Figure 3: Patient Kashapova M., and / or number 33312/2104 Results of the computer program application

On control EGFDS: acute stomach ulcer covered with a grey, fixed clot. There are no signs of blood in the stomach (Fig. 4).



Figure 4: Patient Kashapova M., and / or number 33312/2104 Control EGFDS. Acute stomach ulcer. Donkey bleeding on Forrest 2B.

Positive dynamics is observed on ECG and Echo-KG. On the background of the conducted scheme of conservative therapy the patient's condition in dynamics with improvement. The patient was transferred to the Emergency Cardiology Department for further treatment, where the conservative therapy was continued. In satisfactory condition on the 17th day she was discharged to outpatient treatment at the place of residence.

## Conclusion.

Thus, summarizing all the above, it should be noted that the computer program developed by us to select treatment tactics for patients with NGDK combined with various forms of CHDs most fully meets not only the requirements of practical emergency medicine, but also such modern evidence-based medicine.

A clear example of this is the presented case of clinical observation, which convincingly testifies to the fact that the application of the developed by us computer program of choice of tactics of treatment of patients with NGDK combined with various forms of ILIs allows not only to establish the clinical diagnosis accurately, but also to choose the most correct treatment tactics.

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