

PHARMACOTHERAPEUTIC PROPERTIES OF DRUGS USED IN THE TREATMENT OF GASTRIC ULCER.**Begnaeva Mukhiba Usmonovna**

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Abstract. *The two-stage scheme of gastric ulcer treatment is the most effective:*

Stage I lasts 7 days. During this period, the patient is prescribed a combination of two antibiotics, usually metronidazole and clarithromycin, as well as a proton pump inhibitor such as lansoprazole. Medicines can be replaced with analogues at the discretion of the attending physician, and the dose is determined individually. The goal of the first stage of treatment is to completely eliminate Helicobacter pylori, and in 95% of cases this task can be overcome;

Stage II lasts 14 days and is required only if Helicobacter pylori is found in the stomach after the first stage. A tandem of metronidazole + tetracycline antibiotics is used against bacteria, and the therapy is supplemented with one of the bismuth drugs, as well as PPIs (omeprazole, rabeprazole) and histamine receptor blockers (ranitidine, famotidine).

Key words. *Gastric ulcer, antibiotics, drug interaction, pharmacotherapeutic properties of drugs.*

Аннотация. *Двухэтапная схема лечения язвенной болезни желудка является наиболее эффективной:*

I стадия длится 7 дней. В этот период больному назначают комбинацию двух антибиотиков, обычно метронидазола и кларитромицина, а также ингибитора протонной помпы, например лансопразола. Лекарства могут быть заменены аналогами по усмотрению лечащего врача, а доза определяется индивидуально. Целью первого этапа лечения является полная элиминация Helicobacter pylori, и в 95% случаев эта задача решается;

II этап длится 14 дней и требуется только при обнаружении Helicobacter pylori в желудке после первого этапа. Против бактерий применяют тандем метронидазол+тетрациклиновые антибиотики, а терапию дополняют одним из препаратов висмута, а также ИПП (омепразол, рабепразол) и блокаторами гистаминовых рецепторов (ранитидин, фамотидин).

Ключевые слова: *язвенная болезнь желудка, антибиотики, лекарственное взаимодействие, фармакотерапевтические свойства препаратов.*

Treatment should be supported by anti-inflammatory, analgesic, antispasmodic, wound healing, antiemetic and other drugs that relieve the unpleasant symptoms of stomach ulcer and accelerate the healing process. Folk medicine (herbal decoctions and infusions), vitamins, natural extracts, for example, aloe vera, are very useful. However, you should consult your gastroenterologist for any medication.

Gastric ulcer disease is very individual and is characterized by different indicators of acidity and is often accompanied by complications from other organs. In addition, antibiotic therapy almost always has side effects in the form of indigestion and pain. Treatment of acute gastric ulcer is recommended to be carried out in a hospital under the constant supervision of qualified specialists.

COMPLETE LIST OF MEDICATIONS FOR STOMACH ULCER

A complete list of medications for stomach ulcers

ANTIBIOTICS:

Clarithromycin. A semi-synthetic macrolide antibiotic. A direct descendant of erythromycin, it is a hundred times more resistant to the destructive effects of hydrochloric acid, is more completely and quickly absorbed, is well distributed in tissues and has a long half-life. Therefore, clarithromycin is superior to erythromycin and is recommended as the primary antibiotic for the treatment of peptic ulcers;

Amoxicillin. A semi-synthetic antibiotic of the penicillin group. Unlike penicillin, it is resistant to the corrosive effects of gastric juice, is almost completely absorbed (93%), spreads faster through tissues and fluids, completely covers the body and remains in it longer, which allows prescribing amoxicillin ulcers twice a day instead of four days;

Metronidazole. Antimicrobial and antiprotozoal drug has a very wide range of action. One of the oldest, most reliable and effective antibiotics belongs to the group of vital drugs. Metronidazole is a synthetic analogue of azomycin, a natural antibiotic produced by bacteria of the genus *Streptomyces*. Harmful microorganisms and protozoa interact with metronidazole, as a result of which its 5-nitro group is restored. And it, in turn, destroys the DNA of parasites and microbes;

Tetracycline. An antibiotic from the tetracycline group. It has a bacteriostatic effect, that is, it disrupts the interaction between ribosomes and transport RNA, as a result of which protein synthesis by bacterial cells is stopped and they die. Tetracycline is active against many gram-positive and gram-negative microorganisms, as well as most enterobacteria, including *Helicobacter pylori*.

HISTAMINE RECEPTOR BLOCKERS:

Ranitidine. The drug is the second generation of histamine blockers. It reduces the activity of pepsin (digestive enzyme responsible for breaking down proteins). It normalizes the pH level in the stomach, inhibits the synthesis of hydrochloric acid. Depending on the dose, it protects the mucous membrane from the harmful effects of excessive acidity for 12-24 hours;

Nizatidine. Second generation of histamine H₂ receptor blockers. It suppresses the specific synthesis of hydrochloric acid by the walls of the stomach and the excessive synthesis caused by enzymes and mediators of acetylcholine, histamine and gastrin. Significantly reduces the hyperactivity of pepsin and maintains the pH level in the physiological norm for 12 hours after consumption;

Roxatidine. Second generation of histamine H₂ receptor blockers. It inhibits the activity of pepsin, normalizes the acid-base balance of the stomach, reduces the secretion of hydrochloric acid due to food, gastrin, histamine, acetylcholine, and also suppresses the basal synthesis of gastric juice. It is quickly absorbed and has an effect within an hour after taking. The effect lasts from 12 hours to a day depending on the dose;

Famotidine. It is also a drug of the second generation of histamine H₂ receptor blockers. It inhibits the basal and externally stimulated secretion of hydrochloric acid by the cells of the gastric mucosa. Thus, it protects the patient's body from the unwanted effects of pepsin, histamine, gastrin and acetylcholine;

Cimetidine. The drug is the first generation of histamine H₂ receptor blockers, but still has not lost its importance. It also regulates the pH level in the stomach, inhibits the synthesis of hydrochloric acid and inhibits the activity of the pepsin enzyme. It costs less than the above modern analogues, but it is less effective due to the short duration of action (6-8 hours).

PROTON PUMP INHIBITORS (PPIs):

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Lansoprazole. H⁺ -K⁺ -ATPase inhibitor - the enzyme responsible for accelerating the exchange of hydrogen ions. Regardless of the reasons for the high secretion of hydrochloric acid, lansoprazole inhibits its production at the last stage, that is, before it enters the gastric cavity;

Omeprazole. In addition, it inhibits the effect of the proton pump by inhibiting the activity of the H⁺ -K⁺ -ATPase enzyme. Hydrogen ions penetrate worse between the membranes of the cells of the gastric mucosa and this prevents the production of gastric juice. It does not matter what exactly triggers the hypersecretion of hydrochloric acid - food intake or the effect of enzymes and mediators;

Rabeprazole. Better known under the brand name "Pariet". This drug not only inhibits the secretion of hydrochloric acid, blocks the action of H⁺ -K⁺ -ATPase, but also has a harmful effect on *Helicobacter pylori*, the culprit of stomach ulcers. Rabeprazole begins to act an hour after taking it and protects the mucous membrane for up to two days in a row;

Esomeprazole. A drug that is a dextrorotatory isomer of omeprazole and has similar effects. It also inhibits the synthesis of hydrochloric acid at the last stage due to the deterioration of hydrogen exchange between the membranes of the gastric mucosa cells. Being a weak base, esomeprazole is activated in the acidic environment of the parietal tubules and inhibits the action of the proton pump.

GASTROPROTECTORS, ANABOLIC AND REPARANTS:

sucralfate. The drug has anti-ulcer, adsorbing, enveloping, antacid and protective effects. It almost does not affect the healthy mucous membrane, and under conditions of increased acidity of the sick stomach, it breaks down into sucrose sulfate and aluminum, which allows you to bind mucous proteins and form a strong protective film in areas of gastric ulcers. After taking sucralfate, the walls of the stomach are protected for 6 hours from excess hydrochloric acid, pepsin, wastes of harmful bacteria and bile thrown from the pancreas;

Solcoseryl. Strong reparant and cytoprotector. It restores the mucous membrane of the stomach, helps to heal wounds, and improves cell metabolism. It is produced from the blood of dairy calves and is a hemodialysate with a molecular weight of 5000 D. The potential of Solcoseryl is not yet fully understood, but the use of this drug at the stage of treatment of gastric ulcer, i.e. , after an active antimicrobial phase, gives very good results;

Enprostil and misoprostol are synthetic analogs of prostaglandins E₂ and E₁, respectively. These substances are similar to hormones and are produced in almost all tissues of the human body. Prostaglandins are mediators of allergy and inflammation, they regulate blood pressure, normalize muscle tone, reduce stomach acid and inhibit the secretion of gastric juice;

Biogastron. The active substance of this drug is carbenoxolone, a synthetic analogue of glycyrrhizic acid. Scientists extract this valuable material from licorice root. Biogastron has a clear anti-inflammatory effect and is used to treat ulcers in the mucous membrane of the mouth, esophagus and stomach. The drug is well known abroad and is rarely used in Russia, although it has great potential;

Actovegin. Effective reparative and antihypoxant. Like Solcoseryl, it is prepared from blood and is a hemodialysate with a molecular weight of 5000 daltons. Ultrafiltration allows actovegin to penetrate cell membranes, improve oxygen and glucose absorption, and ensure rapid recovery of damaged and inflamed tissues;

Bismuth Tripotassium Dicitrate. The most optimal preparation of bismuth for the treatment of stomach ulcers. In conditions of high acidity, it quickly forms a protective film that covers the damaged areas of the mucous membrane. In addition, tripotassium bismuth dicitrate enhances the production of prostaglandin E2 and inhibits the activity of *Helicobacter pylori*, which causes ulcers;

Amigluracil. Effective anabolic and reparative. It accelerates the synthesis of proteins and amino acids, helps to heal wounds and wound surfaces, improves immunity and enriches the blood with immune cells, helping the body to overcome infections on its own. It is successfully used in the final stage of recovery after gastric and duodenal ulcers;

Methyluracil. It is also a popular immunostimulant, anabolic and reparative. Stimulates the synthesis of leukocytes, accelerates nuclear metabolism, promotes rapid renewal and epithelization of damaged tissues and mucous membranes. The anti-inflammatory effect of methyluracil is associated with its inhibitory effect on proteolytic enzymes. At the final stage of gastric ulcer treatment, the drug helps to regenerate scars and cells;

Sodium oxyferric carbon. Iron-based anti-inflammatory, pain-relieving and wound-healing drug with sodium salts and alloxanic acid. It is used to treat ulcers of the esophagus, small and duodenal ulcers, as well as stomach ulcers;

Romazulan. Chamomile-based phytopreparation with complex effects: relieves spasms, anesthetizes, kills microbes, and stimulates the healing of wounds and ulcers. Romazulan solution is used externally for skin damage, diseases of the oral cavity and urogenital area, as well as internally, diluted with water, for the treatment of stomach ulcers and gastritis;

Histidine hydrochloride. The drug is an amino acid, and when it enters the body, it undergoes a decarboxylation reaction, resulting in the formation of histamine - a mediator that has a multifaceted effect on the body. Histamine stimulates the production of epinephrine, stimulates smooth muscles, increases the permeability of the walls of blood vessels, increases the heart rate, and causes the stomach to produce more gastric juice, and this is necessary in certain types of peptic ulcers.

CHOLINERGIC:

A complete list of medications for stomach ulcers

Gastroceptin. The active substance - pirenzepine - belongs to the group of M1-cholinergic receptor blockers, but unlike the most famous representative of this group, atropine, it does not inhibit the activity of cholinergic receptors of the heart, eyes, salivary glands and other organs. but affects only the gastric mucosa, which produces less hydrochloric acid and pepsinogen;

Buscopan. The drug has a blocking effect on M-cholinergic receptors of the stomach, kidneys, gall bladder and urinary bladder, and also acts as an antispasmodic. Buscopan relieves spasms of smooth muscles and slightly reduces the level of secretion of gastric juice, which allows symptomatic relief of the condition of patients with gastric ulcers;

Platyphyllin. Blocks M-cholinergic receptors of internal organs and eyes about 8 times weaker than atropine, and also blocks H-cholinergic receptors to a certain extent. It wins over atropine because it causes less tachycardia. Platyfillin has an antispasmodic effect on the walls of the stomach and intestines, dilates blood vessels and lowers blood pressure;

Methacin. It is also milder than atropine blockers of M-cholinergic receptors. It reduces the tone of the gall bladder and bladder, relieves spasms and stomach pain, suppresses the secretion

of gastric juice, sweat, saliva and normalizes blood pressure. Less than atropine, causes an unwanted jump in heart rate, pupil dilation and increased intraocular pressure;

Etpenal. Blockers of both types of cholinergic receptors - "H" and "M". Effective local anesthetic, has a good effect on the central and peripheral nervous system. Etpenal is used for the symptomatic treatment of stomach ulcers, as well as bronchial asthma and Parkinson's disease, as it relieves spasms and reduces tremors.

ANTACIDS:

Almagel. A well-known adsorbent, wrap and pain reliever for all wounds. Almagel protects the mucous membrane of the stomach from the harmful effects of excess hydrochloric acid and pepsin, absorbs the toxic waste of bacteria and interferes with the absorption of phosphates. Thus, it does not cure a stomach ulcer, but helps to relieve its painful symptoms and reduce the damage caused by the inflammatory process to the patient's body as a whole;

Thank you. Antacid drug based on magnesium and aluminum hydroxides. Maalox reacts with hydrochloric acid to neutralize its excess and there is no re-compensating secretion. This drug normalizes the pH level and protects the gastric mucosa, but, like Almagel, does not eliminate the cause of the ulcer;

Gastal. A more advanced, combination antacid containing magnesium carbonate in addition to magnesium and aluminum hydroxides. It allows artificially maintaining physiological normal pH 3.5 in the stomach for two hours due to neutralization of excess hydrochloric acid immediately after entering the stomach. Stomach ulcer does not heal, but saves from pain and heartburn;

Phosphalugel. Antacid drug based on aluminum phosphate. It has a more specific and stable effect than the above drugs of the same type. Phosphalugel not only neutralizes excess hydrochloric acid, but also inhibits the activity of pepsin enzyme. It reliably surrounds the walls of the stomach and creates a protective barrier for irritants, but it does not have a harmful effect on *Helicobacter pylori*, so it can be used only for symptomatic relief of the condition of patients with stomach ulcers;

Sodium bicarbonate. Baking soda is the easiest and cheapest antacid. Soda solution helps relieve pain and stomach pain with gastritis and stomach ulcer, and is also used to fight acidosis caused by general intoxication of the body or diabetes.

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