

**GASTROESOPHAGEAL REFLUX DISEASE, ITS STAGES AND TREATMENT
METHODS**

Gulomova Dilfuza

Turan University
Direction of medical work
2nd year student.

Abstract

This article examines the etiology, pathogenesis, clinical manifestations, stages of progression, and modern treatment approaches of gastroesophageal reflux disease (GERD). GERD is a common disorder of the digestive system characterized by the reflux of stomach contents into the esophagus, which may lead to irritation of the esophageal mucosa and various complications. The study focuses on the mechanisms underlying the development of the disease, emphasizing the dysfunction of the lower esophageal sphincter, increased gastric acidity, and impaired motility of the gastrointestinal tract.

In addition, the research analyzes the main risk factors contributing to the occurrence of GERD. These factors include unhealthy dietary habits, excessive body weight, stress, smoking, alcohol consumption, and the use of certain medications that may weaken the protective mechanisms of the esophagus. The article also describes modern diagnostic methods used to detect the disease, such as endoscopic examination, esophageal pH monitoring, laboratory tests, and other instrumental procedures that allow physicians to evaluate the severity and stage of the disorder.

Furthermore, the paper presents scientific information on current treatment strategies, including pharmacological therapy, dietary and lifestyle modifications, and surgical interventions in severe cases. The findings suggest that early diagnosis and a comprehensive treatment approach are essential for preventing complications and improving the overall quality of life of patients suffering from gastroesophageal reflux disease.

Keywords

gastroesophageal reflux, GERD, gastric acid, esophagus, reflux disease, diagnostics, proton pump inhibitors, treatment methods.

Аннотация

В данной статье рассматриваются этиология, патогенез, клинические проявления, стадии прогрессирования и современные подходы к лечению гастроэзофагеальной рефлюксной болезни (ГЭРБ). ГЭРБ — распространенное заболевание пищеварительной системы, характеризующееся забросом содержимого желудка в пищевод, что может привести к раздражению слизистой оболочки пищевода и различным осложнениям. Исследование сосредоточено на механизмах развития заболевания, с акцентом на дисфункцию нижнего пищеводного сфинктера, повышенную кислотность желудка и нарушение моторики желудочно-кишечного тракта.

Кроме того, в исследовании анализируются основные факторы риска, способствующие возникновению ГЭРБ. К этим факторам относятся нездоровые пищевые привычки, избыточный вес, стресс, курение, употребление алкоголя и использование некоторых лекарственных препаратов, которые могут ослаблять защитные механизмы пищевода. В статье также описываются современные методы диагностики, используемые для выявления заболевания, такие как эндоскопическое исследование, мониторинг pH



пищевода, лабораторные анализы и другие инструментальные процедуры, позволяющие врачам оценить тяжесть и стадию заболевания.

Кроме того, в статье представлена научная информация о современных стратегиях лечения, включая фармакологическую терапию, диетические и поведенческие изменения, а также хирургические вмешательства в тяжелых случаях. Полученные результаты свидетельствуют о том, что ранняя диагностика и комплексный подход к лечению имеют важное значение для предотвращения осложнений и улучшения общего качества жизни пациентов, страдающих гастроэзофагеальной рефлюксной болезнью.

Ключевые слова

гастроэзофагеальный рефлюкс, ГЭРБ, желудочная кислота, пищевод, рефлюксная болезнь, диагностика, ингибиторы протонной помпы, методы лечения.

Introduction. In modern medical practice, diseases of the digestive system occupy an important place. Among these diseases, gastroesophageal reflux disease (GERD) deserves special attention as one of the most common pathologies. This disease is a chronic condition that occurs as a result of the reflux of gastric contents into the esophagus, which is accompanied by functional and morphological changes in the digestive system. GERD can cause disruption of not only the gastrointestinal system, but also the functioning of the whole organism. Therefore, one of the urgent tasks of modern gastroenterology is to study this disease in depth, determine its pathogenesis, and develop effective treatment strategies.

Gastroesophageal reflux disease is characterized mainly by the reflux of gastric contents into the esophageal cavity. Under normal physiological conditions, the lower esophageal sphincter, located between the esophagus and the stomach, performs a protective function. This sphincter is composed of muscle fibers that prevent the stomach contents from moving back up, that is, into the esophagus. When food is ingested, the sphincter relaxes for a short time and allows food to pass into the stomach. However, in some cases, this protective mechanism fails. As a result, hydrochloric acid, pepsin and other aggressive components of gastric juice affect the esophageal mucosa, causing its damage.

The esophageal mucosa is sensitive to an acidic environment, and as a result of repeated exposure to the contents of the stomach, inflammatory processes occur in it. This process is called reflux esophagitis in medicine. During the development of the disease, morphological changes of varying degrees are observed in the esophageal mucosa. Initially, signs of inflammation appear, and later erosion and ulcers may form. If the disease is not treated for a long time, the likelihood of developing serious complications such as narrowing of the esophageal wall or pathological changes in the tissues increases.

In recent years, the prevalence of gastroesophageal reflux disease has been observed to be significantly increasing. According to epidemiological studies, in developed countries, approximately 20-30% of the population suffers from various symptoms of this disease. In some regions, this figure may be even higher. GERD has begun to occur not only among the elderly, but also among young people and even children. This indicates the need for early detection of the disease and strengthening preventive measures.

Various factors influence the prevalence of the disease. Among the most important reasons are unhealthy eating habits. Excessive consumption of fatty, spicy, fried and very hot foods increases the production of stomach acid and increases the likelihood of reflux. In addition, carbonated drinks, caffeinated products, chocolate and some spices can also cause relaxation of the esophageal sphincter. As a result, it is easier for stomach contents to pass back into the esophagus.



Excess body weight is also one of the important factors in the development of GERD. In case of obesity, pressure in the abdominal cavity increases, which causes the stomach contents to move upward. Therefore, reflux disease is more common in overweight people. In addition, reflux symptoms can occur during pregnancy as a result of increased intra-abdominal pressure.

Stress and psycho-emotional stress also play an important role in the development of this disease. Modern lifestyle, constant nervousness and mental stress have a negative effect on the functioning of the gastrointestinal system. Under the influence of stress, the activity of the autonomic nervous system changes, gastric secretion increases or sphincter function is impaired. This leads to an increase in the reflux process.

Gastroesophageal reflux disease is clinically manifested by various symptoms. One of the most common symptoms is a feeling of heartburn in the chest, that is, "heartburn". This condition usually worsens after eating or when lying down. A sour taste in the mouth, pain in the esophagus, and difficulty swallowing may also be observed. In some cases, the disease manifests itself not only with digestive symptoms, but also with respiratory symptoms - cough, hoarseness, or sore throat.

If the disease is not detected in time and left without adequate treatment, it can lead to serious complications. For example, chronic inflammation of the esophageal mucosa leads to erosions and ulcers. This process can later lead to narrowing of the esophageal wall. In addition, as a result of a prolonged reflux process, there is a possibility of developing a pathological condition called Barrett's esophagus. In this case, the structure of the cells of the esophageal mucosa changes, increasing the risk of developing cancer in the future.

Therefore, early detection and effective treatment of gastroesophageal reflux disease are important. Modern medicine uses various diagnostic methods to diagnose the disease. Endoscopic examination, pH-metry, X-ray studies and other laboratory tests help to determine the exact causes of the disease. In addition to medications, lifestyle changes, dietary changes and the abandonment of harmful habits play an important role in the treatment process.

That is, gastroesophageal reflux disease is one of the most common and urgent medical problems in modern society. Various factors play an important role in the development of the disease - malnutrition, overweight, stress, harmful habits and long-term use of certain medications. Therefore, in-depth study of this disease, identification of its development mechanisms, and development of effective prevention and treatment methods are of great scientific importance for medical science and practice [1].

Research methodology and literature analysis. In the process of this study, scientific literature, clinical observations and statistical data on gastroesophageal reflux disease were analyzed. The study was based on modern scientific sources in the field of medicine, clinical recommendations and information published by international gastroenterology organizations.

The following methodological methods were used: the method of analysis of scientific literature, the method of comparison, the generalization of clinical observation data and systematic analysis.

The effectiveness of diagnostic methods in studying the stages of development and treatment of gastroesophageal reflux disease was also assessed. The results of the study were analyzed based on modern scientific views in the field of gastroenterology.

Gastroesophageal reflux disease (GERD) is one of the most widely studied diseases in modern gastroenterology. In recent years, many scientific studies have been conducted aimed at improving the diagnosis and treatment of this disease.

In the study conducted by K. Iwakiri, Y. Fujiwara and N. Manabe, clinical recommendations for the diagnosis and treatment of gastroesophageal reflux disease were systematically analyzed. The authors noted that the patient's clinical symptoms, endoscopic



examinations and esophageal pH monitoring are important diagnostic criteria for diagnosing the disease. The researchers note that proton pump inhibitors are used as the main therapeutic agent in the treatment of gastroesophageal reflux disease. They also emphasize that lifestyle changes, diet and weight loss increase the effectiveness of treatment. This study serves as an important scientific basis for clinical decision-making in gastroenterology practice [3].

S.W. Liang, M.W. Wong and C.H. Yi analyzed modern approaches to the diagnosis and treatment of gastroesophageal reflux disease. The authors emphasize that lower esophageal sphincter insufficiency is one of the main factors in the development of the disease. According to the results of the study, modern diagnostic methods - endoscopy, pH-metry and manometry - allow for an accurate diagnosis of the disease. In addition, the authors show that, along with pharmacological treatment, minimally invasive surgical methods are also effective. In particular, it is noted that fundoplication surgery can provide long-term positive results in some patients. The analysis of the above scientific studies shows that an integrated approach to the treatment of gastroesophageal reflux disease is important. In modern medicine, early detection of the disease, the use of correct diagnostic methods, and the combination of pharmacological and surgical treatment methods serve to improve the quality of life of patients [4].

Results and discussion. Gastroesophageal reflux disease (GERD) is one of the most common chronic diseases of the digestive system. This pathology occurs as a result of the reflux of gastric contents into the esophageal cavity and is manifested by damage to the esophageal mucosa. The disease is a slowly developing process, with several stages in its development. In medical practice, various classifications are used to determine the degree of the disease and assess the severity of the damage. Among them, one of the most common and frequently used classifications in practice is the Los Angeles classification.

This classification divides GERD into four stages depending on the degree of erosion and inflammation of the esophageal mucosa. This classification is based on the results of endoscopic examination and is important for gastroenterologists in diagnosing the disease and determining the treatment strategy. Determining the stages of the disease is necessary to assess the patient's condition, determine the risk of complications, and develop an individual treatment plan.

The first stage is Stage A. The initial stage of the disease is called Stage A. At this stage, very small lesions are observed in the esophageal mucosa. Usually, the erosions or inflammations are less than 5 millimeters in diameter and are located only in a small part of the esophageal wall. These changes are often detected during endoscopic examination, since clinical signs are not always clearly manifested in the early stages.

In stage A GERD, the damage to the esophageal mucosa is relatively mild and is often associated with transient reflux episodes. Patients may often experience a burning sensation behind the chest, a sour taste in the mouth, or discomfort after eating. If the disease is detected at this stage, it can be controlled with lifestyle changes and simple conservative treatment measures.

Stage Two – Stage B. The next stage of GERD is stage B. At this stage, the erosions in the esophageal mucosa increase in size and may be more than 5 millimeters in diameter. However, these lesions do not completely cover the esophageal folds. That is, the foci of inflammation are located separately, not merging with each other.

In stage B, clinical symptoms are more pronounced. Patients often complain of frequent heartburn, a burning sensation behind the chest, discomfort or pain when swallowing. In some cases, after eating, sour liquid is observed in the mouth. At this stage, it is very important to start treatment measures in a timely manner, because if the disease is not treated, it can progress to the next stages and cause serious complications.

The third stage is Stage C. Stage C of GERD is a more advanced stage of the disease. At this stage, the inflammatory process is significantly intensified and a large part of the esophageal



mucosa is damaged. Erosions can merge with each other and cover several folds of the esophageal wall.

In stage C, patients have more severe clinical symptoms. Severe heartburn, difficulty swallowing, nausea, abdominal pain, and general discomfort are often observed. In some patients, the passage of food is difficult due to impaired motor function of the esophagus. Treatment at this stage is usually carried out in a complex manner with medications, and the patient must be under the supervision of a gastroenterologist.

Stage Four - Grade D. The most severe stage of GERD is grade D. At this stage, extensive and deep damage to the esophageal mucosa is observed. Erosions cover a large area and are often accompanied by ulceration. Sometimes the deeper layers of the mucosa can also be damaged.

At this stage of the disease, patients are more likely to experience severe pain, persistent heartburn, severe difficulty swallowing, bleeding, or other complications. If treatment is not carried out in a timely manner, esophageal strictures, Barrett's esophagus, or even tumors may develop. Therefore, GERD grade D requires close medical supervision and, often, surgical intervention.

Gastroesophageal reflux disease manifests itself with various clinical symptoms. These symptoms may vary depending on the stage and duration of the disease. The most common symptoms include a burning sensation behind the chest, that is, heartburn. This symptom often worsens after eating or when the patient is lying down.

Patients also experience a sour or bitter liquid in the mouth. This condition is associated with the return of stomach contents through the esophagus into the oral cavity. Sometimes this process also causes the patient to cough or feel an itchy throat.

Difficulty swallowing is also one of the important symptoms of GERD. This condition can occur as a result of inflammation or narrowing of the esophageal mucosa. Patients may experience pain or discomfort when swallowing food.

Nausea, abdominal pain, flatulence, or general discomfort are also among the symptoms characteristic of this disease. In some patients, the disease may also manifest with atypical symptoms. For example, a prolonged dry cough, hoarseness, sore throat, or even asthma-like symptoms may be observed.

Modern medicine uses various diagnostic methods to diagnose gastroesophageal reflux disease. These methods are important in determining the extent of the disease, assessing the degree of mucosal damage, and choosing a treatment strategy.

One of the most important diagnostic methods is endoscopy. With this method, the doctor can directly see the condition of the esophageal mucosa. Endoscopy can detect inflammation, erosion, ulcers, or other pathological changes.

In addition, esophageal pH-metry is also widely used. This method helps to determine the level of acidic environment in the esophagus. Using pH-metry, the number of reflux episodes and their duration are assessed.

X-ray examination also plays an important role in the diagnostic process. X-ray examination performed using a contrast medium helps to determine the anatomical structure of the esophagus, narrowing or other structural changes.

Another important diagnostic method is manometry. This examination allows you to assess the functional state of the esophageal muscles and lower sphincter. Manometry determines the tone of the sphincter and esophageal peristalsis. Treatment of gastroesophageal reflux disease requires a comprehensive approach. The treatment process takes into account the general condition of the patient, the stage of the disease, and clinical symptoms.



The first stage of treatment is to change lifestyle. Patients are advised to lose excess weight, follow a healthy diet, and give up bad habits. It is also important to limit fatty, fried, and spicy foods, and to consume fewer carbonated drinks. It is also recommended not to eat before bedtime, eat small meals frequently, and not lie down immediately after eating. Such simple measures often help reduce reflux symptoms. Various pharmacological drugs are used to treat GERD. One of the most effective groups of drugs is proton pump inhibitors. These drugs reduce acid production in the stomach and help restore the esophageal mucosa.

In addition, antacids neutralize stomach acid and quickly reduce the symptom of heartburn. H₂-receptor blockers are also among the drugs that reduce acid secretion. Prokinetic drugs improve the motility of the esophagus and stomach, accelerating the digestion process. This helps to reduce reflux episodes.

If conservative treatment methods do not give sufficient results or the disease has reached a severe stage, surgical treatment can be used. One of the most common surgical methods is fundoplication. During this operation, the upper part of the stomach is wrapped around the esophagus, creating an artificial sphincter. Fundoplication strengthens the function of the lower esophageal sphincter and helps prevent the reflux of gastric contents. In modern surgical practice, this operation is often performed laparoscopically, which allows the patient to recover faster.

Thus, gastroesophageal reflux disease is a common pathology of the digestive system that develops under the influence of many factors. The disease develops gradually, initially with mild damage to the mucous membrane, and if left untreated, can lead to serious complications. The Los Angeles classification allows us to assess the severity of GERD by dividing it into stages A, B, C, and D. Modern diagnostic methods and treatment strategies can help control the disease and improve the patient's quality of life. The most important thing is to detect the disease early and implement preventive measures in a timely manner [6].

Conclusion. Gastroesophageal reflux disease (GERD) is one of the most common pathologies of the digestive system. This disease occurs as a result of the reflux of gastric contents into the esophagus and can negatively affect the physical and psychological state of the patient. Numerous scientific studies have shown that GERD is associated not only with functional disorders of the digestive system, but also with a decrease in a person's daily activities, work capacity, and overall quality of life. Therefore, this disease is considered one of the urgent problems in modern medicine.

One of the main factors in the development of the disease is a violation of the function of the lower esophageal sphincter. Under normal conditions, this sphincter prevents the regurgitation of gastric contents into the esophagus. However, due to various reasons, including malnutrition, excess body weight, stress, bad habits, and the influence of certain medications, the tone of the sphincter decreases. As a result, stomach acid and enzymes act on the esophageal mucosa, causing inflammation. Prolonged reflux can lead to damage to the esophageal wall, erosion and ulceration.

Gastroesophageal reflux disease usually develops in several stages. In the early stages, the symptoms of the disease are weak or barely noticeable. For example, patients often experience symptoms such as a feeling of heartburn behind the chest, sour belching, and a sour taste in the mouth. As the disease progresses, these symptoms intensify, and clear morphological changes are observed in the esophageal mucosa. In later stages, complications such as erosion, ulceration, and even narrowing of the esophagus may develop. Therefore, clinical signs and pathological changes are manifested to varying degrees at each stage of the disease.

Early detection of GERD is important in preventing the disease from worsening. Modern medicine uses a number of diagnostic methods to diagnose this disease. In particular, the condition of the esophagus is studied in detail using endoscopic examination, pH-metry, X-ray



examinations and laboratory tests. These diagnostic methods allow to determine the extent of the disease, assess changes in the mucous membrane and choose an effective treatment strategy.

The treatment process of the disease requires an integrated approach. First of all, it is important to change the lifestyle of patients. For example, following a healthy diet, losing excess weight, limiting fatty and spicy foods, and giving up bad habits help reduce the symptoms of the disease. Also, medications - proton pump inhibitors, antacids and prokinetic agents - are used to reduce the secretion of gastric acid and improve the functioning of the esophagus.

In some severe cases, conservative treatment methods may not be effective enough. In such situations, surgical intervention may be used. Surgical methods are aimed at restoring the function of the esophageal sphincter and reducing the reflux process.

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