

ON PREDICTING PREDICTORS OF ESOPHAGEAL AND GASTRIC PATHOLOGY DEVELOPMENT IN BRONCHIAL ASTHMA

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Abstract

The article presents the results of studying the frequency and nature of esophageal and gastric lesions in bronchial asthma patients and assessing causal risk factors for their development and criteria for predicting their formation. The regimens for administering glucocorticosteroid therapy (GCS) for bronchial asthma and the daily doses of GCS were closely related to the clinical manifestations of the lesions. Smoking, alcohol consumption, consumption of very cold drinks, incorrect use of inhalers, body mass index over 30, use of systemic glucocorticosteroids at doses exceeding 10 mg/day and their prolonged use for more than 5 years, as well as the use of inhaled glucocorticosteroids at doses exceeding 1000 mcg/day and their prolonged use for more than 5 years are important prognostic factors. These factors significantly increase the likelihood of developing gastric and esophageal diseases.

Keywords: Bronchial asthma, glucocorticosteroids, esophageal and gastric damage, prognostic predictors

Introduction

In recent years, a worsening course of bronchial asthma (BA) and a high risk of complications have been observed worldwide [3,4,6]. The prevalence of gastrointestinal tract lesions in patients with BA is found in 40 to 90% of patients. This wide range may be due to differences in how doctors diagnose and evaluate these lesions. Esophagogastroduodenoscopy is considered the standard examination method for the upper gastrointestinal tract in combined pathology, and its effectiveness in detecting lesions is high. It should be noted that lesions of the esophagus and stomach in BA significantly contribute to the formation of mutual aggravation. The problem of gastroesophageal reflux, which occurs in BA patients, deserves special attention [1,2,9]. Studies on the prevalence of reflux in BA patients have shown that it is present in 80-100% of patients with severe BA, in 30-80% of patients with moderate BA, and in 20-30% of patients with mild BA [2,10]. Long-term use of glucocorticosteroids and methylxanthines contributes to the exacerbation of the reflux-induced mechanism of bronchospasm and enhances the negative impact of gastroesophageal reflux on the course of BA [9,10]. There is insufficient research on the effective prevention of lesions of the esophagus, stomach, and duodenum that occur during the treatment of patients with bronchial asthma. Improving methods for early diagnosis of esophageal and gastric lesions in patients with BA increases treatment effectiveness and improves the quality of life of patients [4].



Research Objective

To investigate the nature of esophageal and gastric lesions in patients with bronchial asthma, identify risk factors for their development, and establish criteria for predicting their occurrence.

Materials and Methods

A comprehensive examination was conducted on 150 patients with bronchial asthma, aged 18-65 years, with disease duration ranging from one to twenty years. The diagnosis of BA was established according to the GINA Working Group recommendations (2014). Patients were distributed by disease severity as follows: 20% - BA stage II, 50% - BA stage III, and 30% - BA stage IV. Upon admission to the clinic and four weeks after the start of therapy, all patients underwent a series of clinical, laboratory, and instrumental studies: complete blood count, fecal occult blood test, blood chemistry, and electrocardiography (ECG). To assess external respiratory function, the MICROLAB (Germany) computer pneumotachometry method was used, along with peak flow monitoring to evaluate daily bronchial lability. During the initial examination of BA patients, screening was conducted to identify symptoms of esophageal and gastric involvement, including a questionnaire using a modified survey. Assessment of the esophagus and stomach condition was carried out using esophagogastroduodenoscopy (EGDS) with an Olympus GIFE device, Japan. Statistical processing of the obtained data was performed using modern IBM computing systems and the standard "Excel" software package.

Research Results and Discussion

Studies revealed that 62 out of 150 patients (41.1%) smoke 10 pack-years, 22.7% abuse alcohol, and 79 out of 90 patients (88.2%) use inhaled glucocorticosteroids (IGS) without a spacer and do not follow proper inhalation technique. Most BA patients were overweight (34.7%) or obese (33.3%). 80% of patients received GCS in various forms. 20% of these patients received systemic glucocorticosteroids (SGCs) in various doses, 30% used inhaled glucocorticosteroids (IGCs), and 30% received combined treatment with SGCs and IGCs. Additionally, 30 patients received various doses of short-acting beta-agonists and aminophyllines. Questionnaire screening results showed that most patients do not pay attention to gastroenterological symptoms. The prevalence of symptoms such as epigastric and/or retrosternal pain, belching, heartburn, regurgitation, nausea, and globus sensation varied depending on the chosen therapeutic strategy. According to the survey results, 60% of patients reported heartburn, pain in the epigastric region and/or behind the sternum, belching, 50% noted globus sensation and regurgitation, and 40% experienced epigastric pain and nausea. The study of clinical features of asthma in patients with clinical and endoscopic signs of esophageal damage showed that they have a higher frequency of "cough attacks," a greater number of asthma attacks both during the day and at night, as well as more severe functional impairment (FEV1 49.8% vs. 67.3%). In this group, there was an increase in the consumption of short-acting β 2-agonists (1227.2 mcg/day versus 741.4 mcg/day), an increase in their frequency of use (13 times versus 8 times), an increase in the daily requirement for systemic glucocorticosteroids (60 mg versus 40 mg), and the need for higher maintenance doses of SGCs. Additionally, these patients experienced frequent exacerbations requiring GCS administration, increased need for emergency care, and higher hospitalization rates. EGDS results confirmed the presence of lesions in 67.3% of BA



patients, of which 41.0% had esophageal lesions, 24.3% had stomach lesions, and 2% had duodenal lesions (Figure 1).

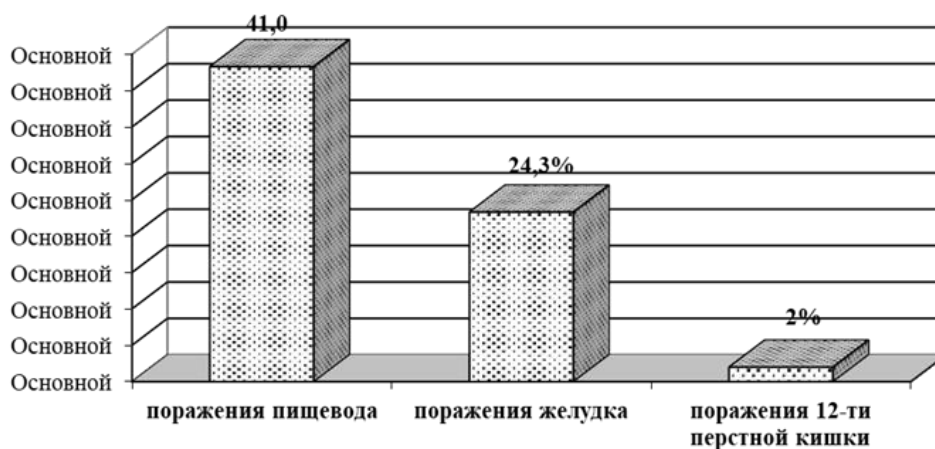


Figure 1. Lesions of the esophagogastrroduodenal region with various approaches to pharmacological therapy for bronchial asthma.

Behavioral factors, including smoking, alcohol consumption, cold beverages, and improper use of inhalers contribute to the progression of bronchial asthma. Key predictors that increase the risk of developing esophageal and gastric pathology are: female sex - 1.8 times higher risk; smoking - 4.5 times higher; alcohol - 3 times higher; cold beverages - 8.7 times higher; errors in inhalation therapy - 3.6 times higher; body mass index - 3.5 times higher; use of systemic glucocorticosteroids (>10 mg/day, >5 years) - 2.5 times higher; use of inhaled glucocorticosteroids (>1000 mcg/day).

Conclusion

Analysis of the frequency of esophageal and gastric pathologies depending on the tactics of asthma drug treatment confirmed the significant influence of therapeutic approach on their development. Factors such as smoking, alcohol consumption, cold drinks, and improper use of inhalers create additional strain on the body and worsen control of bronchial asthma, and are the main predisposing factors for the development of gastroesophageal reflux disease and gastric lesions in asthma patients. These components create favorable conditions for the development of inflammatory and erosive-ulcerative pathology. Based on the obtained data, we developed a system for assessing the "weighted significance" of predictors for high risk of esophageal and gastric lesions in patients with bronchial asthma, which allows us to justify the need for mandatory screening for timely diagnosis and prevention of complications.

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