FREQUENCY OF OCCURRENCE OF GASTROESOPHAGEAL REFLUX IN PATIENTS WITH PATHOLOGY OF THE BRONCHOPULMONARY SYSTEM

Yusupov Fazliddin Tadjievich

Assistant of the Department of Therapy No. 3 Samarkand State Medical University, Candidat of Medical Sciences

Abstract. Gastroesophageal reflux disease (GERD) has bronchopulmonary manifestations, often accompanies recurrent and chronic respiratory diseases (RCRD). The aim of the study was to determine the frequency of GERD in children with RCRD and assess the informativeness of various diagnostic methods.

Keywords: gastroesophageal reflux disease, method, recurrent respiratory diseases.

INTRODUCTION

Respiratory diseases are the most common in children worldwide. There are comorbid diseases that worsen the course and outcomes of respiratory pathology. One of such diseases is gastroesophageal reflux disease (GERD) - a chronic relapsing disease characterized by esophageal and extraesophageal clinical manifestations and various morphological changes in the mucous membrane (MM) of the esophagus due to retrograde reflux of gastric or gastrointestinal contents into it. Extraesophageal manifestations of GERD include various cardiovascular, otolaryngological (for example, recurrent otitis media), dental pathology, but the most numerous group of diseases associated with extraesophageal manifestations of GERD are respiratory. Respiratory manifestations of GERD include chronic pharyngitis, chronic laryngitis, recurrent (spastic) croup, recurrent aspiration bronchitis, recurrent pneumonia, obliterating bronchiolitis, obliterating bronchiolitis with organizing pneumonia, and bronchiectasis. The relationship between GERD and bronchial asthma (BA) is complex. In newborns and infants,

symptoms of GERD include abnormal regurgitation, poor weight gain, refusal to feed, dysphagia, chronic cough, and development of apnea [1].

MATERIALS AND METHODS

At the same time, GERD, including in patients with respiratory diseases, often occurs without any symptoms. Thus, in infants with wheezing, GERD was diagnosed in 60.5% of cases, while 60.9% of these patients did not have typical esophageal symptoms [2]. From 1/3 to 1/2 of patients with bronchial asthma and GERD do not have characteristic esophageal symptoms [3], in another study, typical GERD symptoms, such as heartburn, were present in only 16% of patients with extraesophageal manifestations of the disease.

RESULTS AND DISCUSSION

Diagnosis of GERD is a complex task, since there is no ideal diagnostic method of examination. Esophagogastroduodenoscopy (EGD) is the only diagnostic tool for identifying esophagitis, however, according to the results of the studies, erosive esophagitis was diagnosed in 15–71% of examined patients with GERD [1]. It has been shown that daily intraesophageal combined impedance-pH-metry (IIM) is the most accurate method for diagnosing GERD, since it reveals up to 96% of all refluxes, while isolated pH monitoring revealed only 76% of refluxes [2]. In children over one year of age with verified GERD without characteristic esophageal manifestations, but having respiratory symptoms associated with GERD, a predominance of weakly alkaline refluxes was revealed, while in patients with characteristic esophageal manifestations of GERD, acid refluxes predominated [3]. The aim of the study was to determine the frequency of GERD in children with recurrent and chronic respiratory diseases (RiCRD) and to assess the informativeness of various diagnostic methods.

The overall incidence of GERD based on clinical and instrumental methods in the examined children was 90.4%; based only on instrumental methods – 86.4%, including 92.1% in children with esophageal manifestations of GERD and 80.7% in children without them, without statistically significant differences ($p > 0.05$). GERD was detected with the highest frequency using CIM (93%), which was 3.7 times more frequent than GER detection using isolated pH-metry. Table 1 shows

the incidence of GERD based on clinical and instrumental data in children with different types of RIHRD. According to the study, GERD was diagnosed in 90.4% of children with RIHRD. This result is consistent with the data of previously conducted studies, according to which short-term (within 2–3 hours) pH-metry made it possible to detect GER in 47–100% (on average, 76%) of children with recurrent respiratory diseases [2], and long-term pH-metry detected reflux in 92–94% of examined children with these diseases [4].

According to the data of V.F. Privorotsky et al., 65% of children with bronchial asthma, 88% of children with cystic fibrosis and 50% of children with recurrent bronchitis were found to have GER of varying severity based on clinical, radiological and endoscopic examination methods [2]. Among the patients we examined, pathological GER was confirmed by instrumental methods in 80.7% of children without esophageal manifestations of GERD. The high frequency of GER detection in the children with RIHRD we examined may be a consequence of increased intra-abdominal pressure and an increase in negative pleural pressure during coughing, hyperinflation of lung tissue, as well as the result of the use of bronchodilators that relax the lower esophageal and pyloric sphincters, which increases the frequency and severity of gastroesophageal and duodenogastric reflux. GERD and GERD interact in a closed pathophysiological circle: irritation of the esophageal mucosa by gastric contents can cause bronchospasm mediated through the n. vagus, as well as due to the direct effect on the receptors of the larynx, trachea and bronchi during micro- or macroaspiration of gastric contents, which leads to nonspecific hyperreactivity of the bronchi and the development of an inflammatory process in the tracheobronchial tree [3]. In adult patients, the GERD-Q is a very valuable questionnaire in the diagnosis of GERD. According to V.O. Kaibysheva et al., the sensitivity of the questionnaire in adult patients was 65.4%, specificity - 91.7%, examined for GERD using the method of daily pH-metry [4].

CONCLUSION

In children with RIHRD, the frequency of GER, which is detected with the maximum frequency (93%) during CIM, was 90.4%, among children without

esophageal manifestations of GERD, pathological reflux was confirmed by instrumental methods in 80.7% of patients. The leading type of reflux in children with RIHRD was weakly acidic reflux, which is more common in children without esophageal manifestations of GERD. This may explain the absence of esophageal symptoms in almost half (49.6%) of the examined patients. The study found that the prognostic significance of a positive result of esophageal fluoroscopy, EGDS and pH-metry is quite high (93.8–100%), but the prognostic significance of a negative result is very low (14.3–20%).

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