ANTIBIOTIC-ASSOCIATED DIARRHEA IN CHILDREN, FEATURES OF THE COURSE IN YOUNG CHILDREN

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Abstract. The aim of the study was to investigate the likelihood of developing antibiotic-associated diarrhea in young children with signs of acute respiratory infection depending on the prescription of probiotics and the duration of breastfeeding. The examination was conducted in 70 children aged 1 to 3 years who were hospitalized with a diagnosis of acute respiratory infection in the form of severe acute nasopharyngitis.

Keywords: acute respiratory infection, method, antibiotic-associated diarrhea.

INTRODUCTION

Respiratory pathology is one of the leading causes of morbidity and mortality in childhood, especially at an early age. Most visits to a pediatrician or general practitioner are due to acute respiratory infections (ARI). High incidence of ARI persists throughout the year, but it is more significant in the autumn-winter period. During flu epidemics, up to 90% of children suffer from one or another form of respiratory pathology. During the year, one child can be registered up to 8 diseases per year. Children aged 6 months to 6 years are most often affected, with a peak at 3-6 years, especially those attending preschool institutions during the first year. The main etiological factor of ARI is viruses - in more than 90% of cases, although a bacterial infection may join in later.

MATERIALS AND METHODS

The study was conducted in 70 children aged 1 to 3 years who were hospitalized with a diagnosis of ARI in the form of severe acute nasopharyngitis. All patients received antibiotics parenterally in age-appropriate dosages from the

moment of admission to the hospital. In 26 children (37.1%), antibacterial therapy was accompanied by the prescription of probiotics in age-appropriate dosages. The incidence of AAD was assessed depending on the prescription/non-prescription of biopreparations, the type of antibiotic therapy, as well as the duration of breastfeeding in the first year of life, up to 6 months of life or older, up to 1 year. Statistical processing included determining the value of the proportion of the studied feature; the odds ratio (OR) was used to analyze the relationship with the prescription of biopreparations and the duration of breastfeeding. The reliability of the data obtained was calculated using the $\chi 2$ and Fisher criteria.

RESULTS AND DISCUSSION

After admission to the hospital, all children received antibacterial agents parenterally in age-appropriate dosages. Penicillin antibiotics, cephalosporins, and macrolides were administered. Most often, children received 3rd generation cephalosporins - in 46% of cases, less often 1st generation cephalosporins and macrolides - 24% and 20%, penicillin - only in 10% of cases. The decision on the need to use antibiotics is one of the main and constant components of choosing ARI therapy. The following indications for prescribing antibiotics are distinguished: an increase in body temperature above 38°C for more than 3 days, dyspnea without obstruction and asymmetry of wheezing, leukocytosis (above 15×109/l), acute otitis media, tonsillitis of streptococcal etiology, sinusitis with pain and swelling of the face, bronchitis caused by atypical flora (chlamydia, mycoplasma), pneumonia [1]. In reality, antibiotics are prescribed much more often due to various factors, among which, apparently, the dominant ones are the concerns of the doctor and the patient's relatives regarding the possibility of developing complications of ARI. It is difficult to assume that in half of children with ARI, medications are actually indicated. In developed countries, unjustified and irrational use of antibacterial agents is observed in 25–40% of cases [2]. The development of AAD was noted during the first – beginning of the second week after the introduction of antibiotics. The criteria for AAD were three or more episodes of unformed stool for two or more consecutive days. In general, symptoms of AAD were noted in 43 children out of 70, which amounted to 61.4%.

Literature data indicate that the frequency of AAD can range from 5 to 62%. At the same time, frequent ARIs with the prescription of drug therapy, previous episodes of antibacterial therapy can increase the risk of developing AAD [3].

Table 1

Frequency of antibiotic-associated diarrhea depending on the type of antibiotic therapy

Antibiotics	AAD Abs. value /Total/%	AAD Abs. value /Total/%	Confidence value
Penicillin lines	7/7/100	-/-/-	-
Cephalosporins 1st generation	5/17/29.4	12/17/70.6	0.02
Cephalosporins 3rd generation	28/32/87.5	4/32/12.5	0.0007
Macrolides	4/14/28.6	10/14/71.4	0.03

Most often, AAD was observed in children receiving penicillin antibiotics and third-generation cephalosporins, less often first-generation cephalosporins and macrolides, which generally corresponds to the literature data. The difference in the action of drugs may be due to the specific effects of a particular drug. The most common cause of AAD is associated with the replacement of normal microflora with opportunistic and pathogenic microorganisms, which leads to a decrease in the metabolism of carbohydrates and bile acids and the development of osmotic or secretory diarrhea, which is generally universal for the action of antibiotics of different groups. However, a direct stimulating effect on intestinal motility, possible for macrolides, is also possible due to the laxative effect of additional components of drugs, in particular, clavulanic acid [4].

CONCLUSION

The probability of developing AAD was high and amounted to 61.4%, which was determined by the characteristics of antibacterial therapy. The administration of probiotic biopreparations can reduce the risk of developing AAD by 3.6 times, while breastfeeding - by 2.7 times.

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