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CLINICAL FEATURES OF THE COURSE ANTIBIOTIC-ASSOCIATED DIARRHEA IN CHILDREN

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Tayanch so‘zlar: antibiotik terapiyasi, antibiotiklar bilan bog‘liq diareya, bolalar.
Ключевые слова: антибактериальная терапия, антибиотик-ассоциированная диарея, дети.

The development of diarrhea during antibacterial therapy was observed in 27.2% of cases (40 children)out of 147 children. Diarrhea appeared on average 3.8±1.7 days after the start of antibiotic therapy. The average duration of antibiotic-associated diarrhea (AAD) was 5.3±1.8 days (ranging from 3 to 8 days). All patients presented with complaints of diarrhea without blood but occasionally with mucus after starting antibiotic therapy. In 35% of cases (14 children), the disease was accompanied by vomiting 1 to 3 times a day. Additionally, 28 patients (70%) had complaints of bloating. The average stool frequency was 4±2.3 times per day. The stool was watery, green, and contained undigested food particles.

BOLALARDA ANTIBIOTIKLAR BILAN BOG‘LIQ DIAREYANING ZAMONAVIY JIHATLARI

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147 boladan 27,2% hollarda (40 bola) antibakterial dorilarni qabul qilish paytida diareya rivojlanishi kuzatilgan. Diareya paydo bo‘lishi antibiotik terapiyasi boshlanganidan o‘rtacha 3.8±1,7 kun kuzatilgan. AAD davomiyligi o‘rtacha 5,3±1,8 kunni tashkil etdi (o‘zgarish 3-8 kun). Barcha bemorlar diareyaning antibiotik terapiyasi boshlanganidan keyin najasning qon aralashmasisiz faqat shilimshiq bilan kelganligidan shikoyat qilgan. 35% hollarda (14 bola) kasallik kuniga 1-3 marta qusish bilan bo‘lgan. Shuningdek, 28 bemorda (70%) qorinnihg damlanishi kuzatilgan. Najasning o‘rtacha chastotasi kuniga 4±2,3 marta. Najas suvli, yashil rangda, hazm qilinmagan oziq-ovqat elementlaridan iborat bo‘lgan.

СОВРЕМЕННЫЕ АСПЕКТЫ ТЕЧЕНИЯ АНТИБИОТИКО-АССОЦИИРОВАННЫХ ДИАРЕЙ У ДЕТЕЙ

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Из 147 детей развитие диареи на фоне приема антибактериальных препаратов наблюдалось в 27,2% случаев (40 детей). Появление диареи наблюдалось в среднем через 3.8±1,7 дня от начала антибактериальной терапии. Длительность ААД в среднем составила 5,3±1,8 дня (варьировала в переделах 3-8 дней). Все пациенты обращались с жалобами на диарею без примеси крови, периодически со слизью после начала антибиотикотерапии. в 35 % случаев (14 детей) заболевание сопровождалось рвотой от 1 до 3 раз в сутки. Также у 28 пациентов (70%) присутствовали жалобы и на вздутие живота. Средняя частота стула составляла 4±2,3 раза в сутки. Каловые массы были водянистые, зеленого цвета, с непереваренными элементами пищи.

Relevance: The study of diarrhea in children is important due to its widespread occurrence (1-12 billion cases annually worldwide, according to WHO), polyetiology, diagnostic difficulties, and tendency toward chronic progression. Among diarrhea cases, increasing attention is given to antibiotic-associated diarrhea (AAD) [1]. The widespread use of antibiotics in medicine, often with unjustified indications, and their free availability lead to irrational drug use from an early age. Antibiotics are among the leading causes of drug-related complications, responsible for up to 37.2% of all medication-related adverse effects [2,7]. The most common adverse effects include allergic reactions, followed by gastrointestinal complications. The lack of clinical awareness and mandatory registration of drug-related complications hinders the accurate assessment of AAD incidence. However, according to international studies, AAD accounts for 5-30% of acute diarrheal syndrome cases in hospitalized patients [8]. The incidence of AAD is mostly studied in individuals currently or recently receiving antibiotics. Studies have reported a significant variation in AAD frequency depending on treatment intensity and duration. In Ukraine, the incidence of AAD in children receiving outpatient antibiotic therapy was 15.5% [5], rising to 21% in pediatric intensive care units [4]. Nosocomial diarrhea is recognized as a major contributor to AAD, with an increasing incidence and more severe clinical manifestations leading to higher mortality rates.

Objective: To determine the frequency and clinical characteristics of antibiotic-associated diarrhea in children.

Materials and methods: The study was conducted for 6 months in 3 departments: early childhood diseases, pulmonology, nephrology, and Pediatrics. By random selection, every 5th child who received antibiotic therapy was included into the study: the total number of patients was 147 children aged 1 month to 5 years. To confirm the diagnosis, general clinical studies were used (assessment of physical development, blood test, coprology, feces for microflora, total protein, ultrasound, chest X-ray and MSCT, and according to indications). The study did not include patients who had a stool disorder in the form of diarrhea a week before treatment, as well as those who took an antibiotic during the last month before the first visit, as well as patients with malabsorption syndrome. In addition, symptoms typical of antibiotic-associated diarrhea were assessed on a five-point scale: profuse watery stools, abdominal pain, abdominal splashing, flatulence, and vomiting. Maximum of 20 points. On a four-point scale, the general symptoms of the disease (subfebrility, adynamia, loss of appetite, fatigue) were evaluated, maximum of 12 points. The average age of patients with AAD was 23.3 + 2.4 months. All children were divided into 3 age groups from 1 month to 6 months, from 7 months to 1 year, older than 1 year. Most often, AAD developed between the ages of 7 months and 1 year. As can be seen from table 1, the number of boys was 1.5 times higher than the number of girls. When studying the medical history, it was found that in a quarter of patients with AAD, parents had health problems: gastrointestinal pathology was the most common (45.6% of cases). Allergoanamnesis among relatives was burdened in half of the examined children, so respiratory allergies came to the fore - 42.3%, food intolerance – 35.6%, contact dermatitis – 22.1%. In 20% of cases, pregnancy among mothers was accompanied by complications (threat of miscarriage, preeclampsia, severe anemia, pneumonia). About half of the mothers (46.7%) took antibacterial drugs during pregnancy. The most commonly used drugs were cephalosporin–type (74%), every fourth woman was prescribed drugs from the penicillin group (22.2%), macrolides - in only 1 case. It is known, that the way of birth and the type of feeding have a great influence on the formation of the intestinal microbiota in a child. Thus, every fifth patient was born by caesarean section, 60.3% of children were exclusively breastfed, about a third (27.6%) were formula-fed from birth, and 12.1% were artificially breastfed.

Results and Discussion: The total number of examined patients was 147 children aged from 1 month to 5 years. The average duration of antibiotic therapy was 7.16±1.75 days (5-14 days). 14 children had previous antibacterial therapy in the last 4 months before the study. The reasons for prescribing antibacterial therapy were: community—acquired pneumonia — 25.4% (37), acute pyelonephritis — 15.4% (23), sepsis — 35.7% (52), urinary tract infection — 10% (15), chronic bronchitis - 10% (15), cystic fibrosis — 1% (5). The development of diarrhea while taking antibacterial drugs was observed in 27.2% of cases (40 children) out of the 147 children. The frequency of AAD at the time of hospital stay depended on the group of drugs and, to a lesser extent, on the form of their administration. As can be seen from the table, the most common cause of AAD was cephalosporins – 44.8% (26), which is associated with incomplete absorption of these antibiotics from the intestinal lumen. Penicillin-type drugs are much less common, despite the literature data (13.8%) (8). Combinations of drugs also played an important role, for example, one in seven children developed diarrhea against the background of the use of penicillins and cephalosporins, as well as cephalosporins with aminoglycosides. The main complaints of the patients were intestinal dyspepsia.: frequent watery stools, bloating, vomiting. As mentioned above, diarrhea developed on average on the third day after the start of antibiotic therapy. The manifestations of diarrhea varied significantly in severity, which made it difficult to identify and register mild cases of diarrhea. On average, the stool frequency was 5.1 + 0.42 times, ranging from 3 to 15 times. The nature of the stool at the beginning was watery and corresponded to the stage of secretory diarrhea. In 7 (4.6%) cases, children showed symptoms of moderate dehydration. It should be noted that diarrhea was most pronounced in patients over the age of 1 year. The frequency of bowel movements in this group of children was 6.4 + 0.5, which was 1.3 times higher than in the group from 7 months to 1 year (4.5 + 0.2), and slightly higher than in the group from 1 to 6 months (5.2 + 0.8). Many patients were concerned about abdominal pain, which worsened with palpation of the large intestine.

In patients receiving ampicillin, diarrhea was observed in 10% of cases, amoxicillin in 15% of cases, and the cephalosporin series led to the development of diarrhea in only 5% of cases. The

appearance of diarrhea was observed on average 1.7 days after the start of antibiotic therapy. The duration of AAD averaged 5.3±1.8 days (varied between 3-8 days). All patients complained of diarrhea without blood admixture, periodically with mucus after the start of antibiotic therapy. In 35% of cases (14 children), the disease was accompanied by vomiting from 1 to 2 times a day. Also, 28 patients (70%) had complaints of bloating. The average stool frequency was 4±2.3 times per day. The stool was watery, green in color, with undigested food elements. Palpation of the abdomen was sensitive, especially in the descending colon, and increased intestinal noises were noted. No inflammatory changes were observed in the general blood test. In very rare cases, blood was present in the feces — in 2 patients (5%), a positive test for hidden blood was present in 10 (25%). Leukocytes in feces were observed in 1000/0 of cases with antibiotic-associated diarrhea. When analyzing the scales used to assess specific and general symptoms of the disease, it was found that in 58.2% of children the total score did not exceed 18, which indicated the presence of a mild form of AAD, which stopped after the withdrawal of antibiotics. In 41.8%, the total score was 25, which characterizes AAD as moderate. Antibiotic-associated diarrhea (AAD) is currently defined as diarrhea unrelated to other causes (at least three episodes of unformed stools for two consecutive days or more) that has developed in connection with antibiotic therapy. According to surveys of practitioners and their patients who received antibiotics during outpatient treatment, the incidence of this pathology in real clinical practice reaches 37% [3,6]. In study we conducted, the frequency of AAD was 27.2%. AAD can range from mild transient diarrhea to severe fatal forms of colitis. The course of AAD depends on the type of pathogen, the nature of antibacterial therapy, its duration, the use of combined antimicrobial therapy, the patient's age, the presence of an immunocompromised status, comorbid conditions, surgical operations on the gastrointestinal tract, the use of antisecretory and antiperistaltic agents, and probe nutrition.

The cardinal manifestation of the disease is diarrhea, which usually develops while taking antibiotics, but may appear much later within 8 weeks after their withdrawal. In most cases, AAD manifests itself by loosening the stool, with minimal signs of colitis without common symptoms. The frequency of stools does not exceed 3-4 times a day, moderate cramping pains in the abdomen are noted, and body temperature does not rise.

Conclusion: Thus, the incidence of antibiotic-associated diarrhea was 27.2%. The most common cause of antibiotic-associated diarrhea is a group of semi-synthetic penicillins.

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