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# Modern Approaches to the Treatment and Prevention of Diarrhea Syndrome

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**Resume.** According to some experts, frequent bowel movements with a frequency of liquid stools more than 2 times a day should be considered diarrhea, but this formulation seems to be insufficiently informative, since it takes into account only clinical characteristics - the frequency and consistency of the stool.

**Keywords.** diarrhea, loose stools, rotavirus, norovirus, enterovirus, adenovirus, shigella, salmonella, escherichia, campylobacter, yersinia infections, viral infections were confirmed by ELISA and PCR.

**Introduction.** Diarrhea is one of the most common syndromes encountered in the practice of a gastroenterologist. The causes of diarrhea are diverse and not necessarily related to the pathology of the digestive system [1].

In the very definition of the concept of "diarrhea" there are significant discrepancies related to what particular criterion should underlie it - the frequency of stools or its daily volume. Most often, both doctors and patients define diarrhea as "frequent loose stools" [2].

According to some experts, frequent bowel movements with a frequency of liquid stools more than 2 times a day should be considered diarrhea, but this formulation seems to be insufficiently informative, since it takes into account only clinical characteristics - the frequency and consistency of the stool [3].

In some cases, the duration of diarrhea is specified - at least 6-12 months, but this characteristic is acceptable, mainly for chronic functional diarrhea (CPK) [2].

**Purpose of the study.** Establish patterns of the epidemic process of acute intestinal infections in certain areas of Andijan to improve the effectiveness of therapeutic and preventive measures.

**Material and research methods.** The object of the epidemiological study was the population who underwent acute intestinal infections in the period 2021-2022, living in the territories of Andijan.

**Research results.** The study included 192 patients with an established diagnosis of AII. The patients were examined for viral (rotavirus, norovirus, enteroviral, adenovirus) and bacterial (shigella, salmonella, escherichia, campylobacter, yersinia) infections. Viral infections were confirmed by ELISA and PCR in coproculture, bacterial infections by culture and PCR.

Children of the first 2 years of life predominated in the age structure of AII with an established pathogen in all regions. In RNO-A, this figure was 77.9% in 2021.

The frequency of registration of bacterial diarrhea in RNO-A in 2021 was 43.2 per 100 thousand, which exceeded the frequency of viral diarrhea (18.8 per 100 thousand). In the UK, there is a similar trend (50.7 per 100 thousand - bacterial diarrhea, 37.8 per 100 thousand - viral diarrhea). In Uzbekistan, the opposite dynamics is noted. Viral diarrhea in 2012 amounted to 74.9, bacterial - 49.1 per 100 thousand people.

A similar trend persisted throughout the observation period. Children under 17 were involved in the epidemiological process on an equal basis with adults. Among the cases in North Ossetia-A, children accounted for 70.7% (40.9 per 100 thousand), in the UK - 48.3% (80.3 per 100 thousand), in the Republic of Uzbekistan - 47.4% (85.0 per 100 thousand).

The incidence of shigellosis in 2008-2012 in North Ossetia-A was high, but in 2021 it decreased (9.7 per 100 thousand) and became comparable with the indicators in the Republic of Uzbekistan (8.3 per 100 thousand). The most affected group remains children under 17 years of age, whose share in RNO-A in 2021 was 66.2%, which is comparable to similar data in the UK (65.2%) and RUZ (58.2%).

The incidence of escherichiosis in North Ossetia-A exceeded the all-Russian indicators throughout the entire observation period. In 2021, the level of escherichiosis in North Ossetia-A decreased by more than 2 times (21.7 per



100 thousand). Only children (99.3%) suffered from escherichiosis. In the UK, the incidence of escherichiosis has not been recorded since 2010.

The incidence of campylobacteriosis in North Ossetia-A began to be registered since 2012 (0.4 per 100 thousand), in 2021 it reached 0.7 per 100 thousand, it was detected only among children. The upward trend in the incidence of campylobacteriosis was noted throughout the territory of the Republic of Uzbekistan, which is consistent with global data and indicates an improvement in the diagnosis of the disease.

The incidence of yersiniosis in the North Ossetia-A region was first noted in 2021 (0.42 per 100 thousand), being detected only in the child population. In the UK, this indicator is 5 times higher than the RNO-A data (2.03 per 100 thousand) and is recorded more often in adults (79.6%). In Uzbekistan, the dynamics of the incidence of yersiniosis does not have significant changes (1.92-1.42 per 100 thousand).

The frequency of detection of viral diarrhea increases in the dynamics of observation in all regions. The incidence of rotavirus infection (RVI) in North Ossetia-A in 2021 was 16.3 per 100 thousand, which is 4 times higher than in 2012 (3.7 per 100 thousand) and indicates an improvement in the diagnosis of infection. All patients were children under 17 years of age. In the UK, the incidence of RVI in 2021 was 35.5 per 100 thousand, children accounted for 93.9%.

Norovirus infection (NVI) in RNO-A was first registered in 2021 (2.3 per 100,000), which indicates an improvement in the diagnosis of the disease. In the Republic of Uzbekistan, there is an increase in the incidence of NVI (4.9 per 100 thousand in 2012), which is consistent with the data of domestic and foreign researchers on the significant role of noroviruses in the etiology of AEI in children. NVI is registered mainly in children, accounting for 100% of cases in RSO-A, and 91.7% in the UK.

To determine the structure of AII in children, an analysis was made of data obtained from official sources (536 children). The analysis of the etiological structure included AII caused by pathogenic bacterial and viral pathogens (392).

When distributing by age, the group of children of the 1st year of life (51.8%) turned out to be the most common. Children 1-2 years old accounted for 34.7%, 3-6 years old - 6.4%, over 6 years old - 7.1%. At the same time, 66.2% of viral diarrheas were distributed to the group of children of the 1st year of life, which exceeded the same indicator in the general group (51.8%),  $p < 0.05$ . Bacterial AII did not differ in frequency compared with the general group and amounted to 0-12 months in children. 44.4% of cases, 1-2 years - in 39.0%, 3-6 years - in 6.2%, over 6 years - in 10.4%.

According to our own research, the leading role in the development of AII belongs to young children (42.7% versus 34.7%), and the proportion of children in the first year of life is less (21.9%) than according to official data (51.8%,  $p < 0.05$ ). Our own data also point to the greater importance of preschool children (22.9% versus 6.4%,  $p < 0.05$ ). The resulting trends can be explained by the expansion of contacts after a year of life and the leveling of the role of breastfeeding.

The results of our own research indicate the leading role of viral diarrhea in the structure of AII (77.1% versus 33.9% from official sources),  $p < 0.05$ , and, accordingly, a lower value of bacterial diarrhea (22.9% versus 66.1%,  $p < 0.05$ ). Differences in the etiological structure of viral and bacterial diarrhea according to official and own sources were not obtained.

**Conclusion.** Among viral diarrheas in North Ossetia-A, the leading role belongs to rotavirus infection, which is consistent with similar trends in all compared regions. A significant increase in the incidence of rotavirus infection and the registration of norovirus infection (3%) in 2021 indicates an improvement in the diagnosis of viral diarrhea in the region.

In the structure of acute intestinal infections, the highest incidence occurs in children under 17 years of age (79%), which corresponds to the all-Russian indicators. The leading role in the development of acute intestinal infections belongs to young children (42.7%), which is associated with the expansion of contacts in this age group and a decrease in the role of breastfeeding.

The existing discrepancies between the ratio of viral and bacterial diarrhea according to our own research (3:1) and official statistics (1:2) indicate the need for a wider introduction of methods for diagnosing viral AII in the region.

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