

## STUDY OF EPIDEMIOLOGICAL FEATURES OF ACUTE ENTERIC INFECTIONS OF THE VARIOUS ETIOLOGIES

The analysis of epidemiological and etiological characteristics in leading forms of acute enteric infections among the population of Kazakhstan is carried out. The age, social and professional factors in development of epidemic process and intestinal infections were observed. 425 tests of feces of persons of various age groups with intestines dysfunction were investigated. Seromonitoring among inhabitants of Almaty and Almaty area by erythrocyte diagnosticum with salmonellosis serogroups A, B, C, D, E and rare (O-24). Dynamics in occurrence of salmonella antibodies during months of the year was studied.

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Acute intestinal infections - a large group of different etiologies of infectious diseases characterized by lesions of the gastrointestinal tract, diarrhea, symptoms of intoxication and dehydration (Pokrovsky, 1985; Shuvalov et al., 2001).

According to the World Health Organization each year 2 billion people become ill with diarrhea, of which 70% are children 5 years of life. There is a specific in manifesting of various mechanisms of infection: sporadic incident cases are more common to contact-household transmission of the infection; group cases are common to nutritional mechanisms of infection; and epidemic diseases - to water related transmissions (Solodovnikov et al., 2002; Cherkasova et al. 2003; Batchaev et al., 2007).

Acute intestinal infections take second place after SARS in the structure of childhood diseases; they are registered in all regions of Kazakhstan. The incidence rate in children is almost 3 times higher than in adults (Omarova, 2005).

The main route of infection in young children is a household contact-way, while older children are infected through food and water transfer mechanisms of infection. Food based infection transmission is predominant in Kazakhstan, while the water related infection transmission makes about 3%.

| Materials of the research  | Volume of the research   | Observed data       |
|--|--|---------------------|
| Epidemiological and statistical methods of inspection and the analysis of the data about disease of leading forms of acute intestinal infections among the population of Kazakhstan and Almaty city. | There were used intensive (on 100 thousand population) and extensive indicators, allowing to define distribution of diseases - on territory, among various age groups of the population during 1999-2009 years | For 1999-2009 years |
| Serum of healthy residents of Almaty region and Almaty city  | Reaction passive hemagglutination of blood people with Salmonella diagnosticum of groups A, B, C, D, E, and rare O-14  | 240 patients        |
| In total, those relating to the decreed contingent   | Bacteriological study  | 1526 patients       |
| Studied fecal samples from patients with bowel dysfunction   | Bacteriological study  | 425 patients        |

Tasks of the study included the analysis of epidemic process of acute intestinal infections, epidemiological and etiological stratification by age and occupation; studying the dynamics of the emergence of Salmonella antibodies among residents of Almaty and Almaty region by month of the year. Statistical data processing was carried out in accordance with the methods described in the literature (Banerjee, 2007; Savilov et al., 2004).

Escheriosis and salmonellosis are increasingly prevalent in Kazakhstan among children under 1 year old. Escheriosis caused by enteropathogenic Escherichia is represented by serovars O18, O26, O55, O111. Shigella (dysentery) and Salmonella are more common in children older than 1 year. The country recorded the incidence of acute intestinal infections throughout the year with a rise in the summer-autumn period.

The analysis by age groups showed a high incidence of acute intestinal infections in children under the age of 14, whose share made 74.7%. The most susceptible to this infection were children under 2 years old - 59.3% of cases. Children not attending preschool institutions made 66.5%. Proportion of pupils was 7.3%. Among adults with acute intestinal infections - the share of non-working population is 8.15%, 4.6% are pensioners, employees and students - 2.5 and 2.2% respectively.

The incidence of shigellosis in the territory of the country is characterized by unstable performance. The leading role belongs to Shigella sonnei and Shigella flexneri. The spread of flexneri dysentery is accompanied by an increase in the incidence of warm years. Continuous and share seasonal incidence in different locations correlated with the temperature of the pre-season and seasonal periods (Kartsev, 2000).

We have calculated the average incidence of shigellosis per 100 thousand for the period 1999-2009 in Almaty, which revealed a pronounced seasonality in all major age-social groups sick. In this case, the highest rates fell to 3 months: August, September and October. The incidence of employees of food companies increased from April to September.

Salmonellosis is characterized by uneven spatial distribution in the areas of the country. The combination of intensive and extensive morbidity and adults and "unorganized" preschool-age children provides a reason to consider these groups as having epidemiological significance.

A decrease in the number of serovars cultures in the country from 93 serovar in 1991 to 26. There were revealed significant differences in the ratio of individual Salmonella serogroups among isolated cultures from both humans and environmental objects. Salmonella enteritidis and Salmonella typhimurium were the predominant among the people of the whole country. Derby, newport, chongwe, virchow, blegdam, makoma, etc. were noted with low rate (1.5-3.1%).

The analysis showed that the largest number of salmonella, isolated from patients with a diagnosis in Almaty city the salmonellosis, accounted for serogroup D - 73.7- 86%. S. Enteritidis accounted for 69-71% in this group; the following serovars were also noted - S. pohoma, S. gallinarum, S. pullorum, S. dublin, S. typhi. Salmonella of group B made up 18% and were represented by species - S. typhimurium, S. derby, S. abony, S. reading and others.

Salmonella of group C1 and C2 made 0.5-5.3% and 0.8 - 3.1% of cases respectively. This group was represented by S. thompson, S. virchow, S. postdam. Salmonellas of rare groups were isolated in 0.6-2.1%.

It was established that all the isolated cultures had a sensitivity to cefalosporinam (ceftriakson), aminoglycosides (gentamicin), ampicillin. Salmonella groups C1, C2, revealed reduced sensitivity to tetracycline, levomycetin; Salmonella serogroups C and E - to nitrofurantoin derivatives.

The alimentary (81.6-97.8%) transmission route of Salmonella infection still remains the main in Almaty city. Household transmission was not widely spread (from 1.6 to 7.2%). Among the Salmonella isolated from environmental objects detected serovars not previously been circulating in the area were S. hincol, S. augustenborg, S. azteca, S. accra,

S. nitra. In this case, S. accra and S. nitra were repeatedly isolated from the meat (beef). Salmonella - S. hincol, S. augustenborg, S. azteca were isolated from washouts of food equipment in enterprises.

Acute intestinal infections caused by pathogenic microflora have been increased in recent years in the country. Types of diseases caused by pathogenic microflora, as well as violation of quantitative and qualitative composition of normal microflora, have become occurring more frequent.

We conducted a study of fekal samples from patients with bowel dysfunction. It was established that in children under the age of 1 year, the E. coli indicator with insufficient enzymatic activity was 66.7%. Coccoid forms of microorganisms and especially the presence of S. aureus were also higher than in other age groups. In this age group there was an increase in the number of yeast-like fungi of the genus Candida.

Decrease of bifid bacteria was more prevalent in adults, and lactobacilli - in children under the age of 1 year.

Reaction of passive hemagglutination, using sera and salmonella diagnosticums from groups A, B, C, D, E, was carried out during the period 2009-2010 in healthy residents of Almaty and Almaty region. Studies have shown that the growth of Salmonella antibody titres in all groups happened in April, was kept at a relatively high level in the warm summer months and early autumn, then a decrease in titres occurred during the winter months. Increasing antibody titers correlated with higher incidence rates for salmonellosis.

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