

THE MECHANISM OF DEVELOPMENT OF THE EPIDEMIC PROCESS IN SALMONELLOSIS

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Annotation: In the last twenty years, in large numbers of countries in the world, the epidemiological features of the incidence of salmonellosis have increased, in particular, human morbidity rate, infection farm animals and birds with salmonella, and the environmental harmed has increased by *S. Enteritidis*. The increase in the epidemiological significance of farm animals, birds and industrial poultry products, the connection between epizootic and epidemic processes, the changes in the sanitary and epidemiological service in the Republic of Uzbekistan require the restructuring of the existing system of epidemiological surveillance for salmonellosis.

Key words: salmonellosis, epidemiology, prevention, epidemiological control.

Relevance. Among infectious diseases, salmonellosis, a representative of acute intestinal infections, occupies an important place after the group of acute respiratory infections [1; 2]. Salmonellosis is an urgent problem of public health and national economy. Salmonellosis is widespread throughout the world. "... salmonellosis, called "diseases of civilization", is so widespread that at present there is no question of eliminating them in any country, but only talking about a decrease in the incidence rate ..." [3; 5; 6]. Currently, the number of patients with salmonellosis in different countries is constantly increasing. [15;9;13]. According to WHO experts, salmonellosis is an urgent problem for the whole world. The socio-economic damage from salmonellosis is enormous [11; 14; 15; 10]. Even in countries where the epidemiological surveillance system for these diseases is well established, official data on the spread of salmonellosis are far from the true incidence and reflect only part of the real situation. Currently, the number of patients with salmonellosis in different countries is constantly increasing. The above data shows that food safety regulators around the world have recently emphasized the epidemic of foodborne salmonellosis and the need to strengthen disease monitoring and targeted control measures to prevent the spread of the disease. According to WHO, salmonellosis is one of the four main causes of gastrointestinal diseases.

The rate of salmonellosis infection and the uneven distribution of it across regions directly depend on social and environmental factors. These include changes in the

production and consumption of food products (expansion, centralization of common food facilities, expansion of the production of semi-finished and finished food products, their distribution through retail chains, etc.), expansion of exports and imports of food and feed, rapid environmental pollution, as well as the quality of medical and veterinary services, the state of laboratory diagnostics, etc [2;3]. *Salmonella enterica* subsp. *enterica* causes food salmonellosis in *humans* [7; 8; 12; 16;17]. In 2010, *Campylobacter* and *Salmonella enterica* were the main causative agents of bacterial gastroenteritis in humans, accounting for 30% (174.3 million) of all cases of diarrhea *worldwide* [10]. In recent years, it has been established that *S. Enteritidis* is the leading etiological serological variant of the "zoonotic" epidemic process of salmonellosis [4].

Purpose of the study: to assess the epidemiological features of gastroenteritis caused by food-associated salmonellosis

Materials and methods of research official data of the Service of Sanitary and Epidemiological Welfare and Public Health of the Republic of Uzbekistan on salmonellosis for 1971-2020, official data and reports of bacteriological laboratories of the Tashkent Department of Sanitary and Epidemiological Welfare and Public Health. Official data of the State Committee for Veterinary Medicine and Livestock Development of the Republic of Uzbekistan for 2012-2021 on salmonella isolated from animals have been received.

According to the results of the epidemiological analysis, the etiological structure of salmonellosis in Uzbekistan has changed over the past 10 years, in particular, the proportion of *S. Enteritidis* isolated from humans, animals and the environment has dynamically increased.

Of 2061 *Salmonella* strains isolated from humans in 2011-2020, 46.4% were *S. Typhimurium* and 53.6% were *S. Enteritidis*

Isolated serovars of salmonellosis isolated from a person in Tashkent in 2011-2020 were analyzed. In 2011-2015, *S. Typhimurium* was the leader in 54% of cases, *S. Enteritidis* was identified in 26% of cases, and other *Salmonella* species in 20% of cases (Picture 2). In 2016-2020 48% of cases were caused by *S. Enteritidis*, 22% by *S. Typhimurium* and 30% by other *Salmonella*

Quarantine restrictions imposed in connection with the outbreak of the global COVID-19 pandemic in 2020 also affected the epidemic process of salmonellosis. Due to the strict quarantine measures in place, most of the population was mostly at home. The population began to strictly observe the rules of sanitation and hygiene. The panic mood of the population led to the uncontrolled use of antibiotics, which affected the bacteriological diagnosis, in the direction of reducing the incidence. As a result, the overall incidence of salmonellosis in Tashkent in 2020 dropped sharply to 182 people, of which 14.8% were caused by *S. Enteritidis*, 6.04% by *S. Typhimurium* and 79.1%

by other salmonella.

When analyzing the microbiological landscape of samples taken from environmental objects in Tashkent in 2011-2020, *S. Typhimurium* dominated in 2011. Since 2016, the *S. Enteritidis* serovar began to prevail, and by 2018 its detection had tripled (25.0% and 75.5%, respectively)

When analyzing the materials of the report of the Service for Sanitary and Epidemiological Welfare and Public Health of Tashkent (2939 examination cards of the epidemic focus), it was found that most cases of the disease (95.8%) were transmitted through food products, (1.32%) through household contact, (0.4%) via water and (2.42%) by other routes.

29% of cases of foodborne salmonellosis are caused by the consumption of chicken meat, 26.7% - eggs of poultry, 17.3% - milk and dairy products, 2.6% - salads, 12.3% - fruits and vegetables, 2.5% of meat products, 0.5% of fish products, 1.6% of confectionery, 0.1% of ice cream and 7% of other food products

According to the results of an epidemiological survey of foci of salmonellosis enteritidis, it turned out that in 2015-2020. patients significantly more often consumed chicken eggs and egg-containing products ($70.1 \pm 2.6\%$), as well as chicken meat ($48.6 \pm 4.1\%$)

To determine the role of birds in the spread of *Salmonella enteritidis*, a special study was carried out in collaboration with specialists from the veterinary service. Samples were taken at 8 poultry farms from Samarkand, Kashkadarya and Jizzakh regions. Bacteriological examination of samples from 84 carcasses of dead birds, washings from eggshells of 70 eggs, 110 samples from farm inventory was carried out. *Salmonella enteritidis* infection was detected in 6 (7.14%) of 84 samples of dead birds, in 8 (11.4%) of 70 eggshell swabs, and in 14 (12.7%) of 110 samples of swabs from farm inventory. These data once again confirm that birds, eggs, poultry farm environments are contaminated with *Salmonella enteritidis*.

CONCLUSIONS

1. Currently, the etiological structure of salmonellosis in Uzbekistan has changed. The proportion of the disease in Tashkent until 1990 was due to *S. Typhimurium* in 85.4% of cases, *S. Enteritidis* in 14.6% of cases. In 2011-2020 *S. Enteritidis* was isolated from humans in 53.6% of cases, *S. Typhimurium* - in 46.4% of cases.

2. Among chickens, their eggs were also relatively high infestation with *S. Enteritidis* (*S. Enteritidis* was isolated in 7.14% of cases, respectively).

3. The main factors of transmission of salmonellosis are food products, among which the main ones are chicken meat (29%) and poultry eggs (26.7%).

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