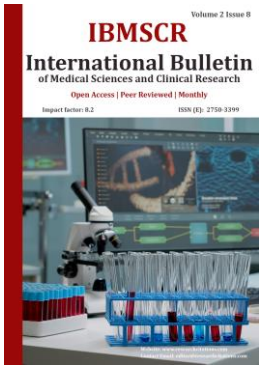

STUDY OF BACTERIAL INTESTINAL INFECTIONS AS AN EXAMPLE OF PLAGUE

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Abstract: In this article, intestinal infections of seasonal biological bacterial nature are studied on the example of the causative agent of cholera. The family of intestinal bacteria includes bacteria that are very close to each other from an evolutionary point of view, but differ in pathogenicity and some characteristics, mainly living in the intestines of humans or vertebrates. Enterobacteria (Enterobacteriaceae) family includes 14 genera: Escherichia; Klebsiella; Proteus, Yersinia, Erwinia, Shigella, Salmonella, Enterobaster, Citrobacter, Hafnia, Serratia, Pro'idencia, Morganella, Edwarosiela. The seed is divided into types, and the type is divided into biological, serological, hemological and other options.
Key words: proteus, V. cholerae, EI-Tor, Ogawa (AV), Inaba (AS), Hikoshima (AVS), antigen,
Cholera is an acute infectious, extremely dangerous disease caused by dehydration of the body, the causative agent of which is V. cholerae, EI-Tor.

Morphology. Cholera vibrio is in the form of a comma-like, slightly bent rod, 1.5–3.0 μm long, 0.3–0.6 μm wide (Fig. 74), it is monotrichous, therefore, it moves very quickly, does not form spores and capsules, is gram-negative.

This microbe is characterized by polymorphism. Under the influence of physico-chemical and biological factors, as well as adverse conditions, they can change their shape and form spherical, rod-shaped, spiral and thready S-shapes in artificial nutrient media and old cultures. If they are planted in freshly prepared nutrients, they will return to their original form. There is not much difference in the structure of classic biovar and El-Tor biovar. Nucleoid DNA contains G+Ts 45–49%, and in V. metschnikovii (proteus) 44–46%. Penicillin causes an L-shape.

Growth. Cholera vibrio is aerobic, it requires nutrients, it grows well in water with 1% peptone, pH-8.0 at 18-37°C, but it can also grow at 14-42°C. In such a nutrient medium, vibrio grows faster than other microorganisms and forms a thin film on the surface of the medium in 6 hours. When grown on 1% alkaline agar, it forms shiny, glass-clear, bluish, slightly rounded, S-shaped colonies with smooth edges.

Cholera vibrio can change from S-form to R-form by dyssostasia. In the process that occurred as a result of this mutation, profound changes occur in the antigenic structure, virulence and other properties of the vibrio.

Pathogenesis of the disease in humans. Cholera is an anthropogenic disease. The source of the disease is the patient, carriers of vibrio and people infected with atypical, asymptomatic types of cholera. Flies play a major role in the spread of plague. Vibrio infects people through water, food, contaminated hands, and various contaminated objects. Cholera vibrio enters through the mouth and reaches the small intestine.

Alkaline conditions in the small intestine, the large amount of residues formed as a result of protein breakdown, and the adhesive nature of cholera vibrio are very favorable conditions.

Then the vibrios attach to small villi in the epithelial cells of the intestine. Then the vibrios begin to multiply and secrete a lot of enterotoxin.

The enterotoxin secreted by Vibrio cholerae increases the activity of the adenyl styclase enzyme in the epithelial cells of the mucous membrane of the small intestine, which in turn increases the production of adenosine monophosphate (st-AMF), which causes a change in the permeability mechanism of the epithelial cells and severe diarrhea. ladi A lot of diarrhea leads to dehydration in the body, a decrease in electrolytes, including potassium and sodium bicarbonate.

The latent period of cholera lasts from several hours to 6 days (2-3 days on average). Dry, typhoid-like clinical manifestations with rapid development of enteritis, gastroenteritis, and algide are noted.

Immunity. People who recover from cholera develop strong immunity against microbes and toxins. Antitoxin, lysine IaA, agglutinin, opsonins appear in the blood. Immunity is also related to the phagocytic activity of macrophages. In addition, a healthy stomach and a sufficient amount of its juice play an important role in the natural protection of the body, because gastric juice has the property of killing vibrios, that is, bactericidal. Some patients remain vibrio carriers for 3-4 weeks.

Laboratory diagnosis. Laboratory tests are carried out in specially adapted conditions for highly dangerous infections. Feces, vomit, body parts, water, food products, etc. are taken for examination. Certain precautions are strictly followed when taking the material and delivering it to the laboratory.

Only the microbiological method is important in cholera diagnosis. The inspection is carried out step by step:

a) a smear is prepared from the patient's feces, stained with an aqueous solution of Gram or fuchsin and viewed under a microscope. If cholera vibrios are present, bent red comma-shaped vibrios will be seen.

b) the patient's excrement is planted in 1% peptone water, alkaline peptone agar or bactoagar (TCVS - agar) and kept in a thermostat for 6 hours, during this period a thin film consisting mainly of cholera vibrios is formed on the surface of the peptone water. A smear is prepared from it, it is stained by the Gram method and viewed under a microscope. Again, a drug is prepared from this membrane in the "hanging drop" method, and the movement of the vibrio is examined under a microscope. A reaction is made with the special O-serum that gives agglutination and the material obtained from this membrane, and if the reaction is positive, it is planted in alkaline peptone agar from 1% peptone water. If the first generation of vibrio is not found in the peptone water, then it is again inoculated from the first peptone water into the second peptone water and alkaline peptone agar and kept in a thermostat for 12 hours.

c) to identify the isolated culture, an extended agglutination reaction with special Ogawa, Inaba sera or O1-antiserum (1:50-1:100) is applied. Its enzymatic properties are tested and

its sensitivity to cholera phage is determined. If the reaction with antisera does not work, then "slide agglutination" reaction with cholera sera of RO and O139 is performed.

In order to distinguish biovars from each other, the sensitivity of phage specific to each of them is checked. V. sholerae biovar dissolves with 4-6 phages, and V. eltor with 2 phages.

Serological methods are also used. An agglutination reaction is performed with the patient's serum, the titers of vibrostid antibodies are also determined.

Immunofluorescence reaction is also used. In this case, the drug is first treated with dye, and then cholera vibro is found with a special serum.

In 1986, 7 mln. the population got sick, 122,000 of them died, more than half of the sick were children. Cholera also occurs in Uzbekistan (including in children), but deaths are rarely reported.

According to the World Health Organization (WHO) (1999), cholera is currently recorded in more than 130 countries of the world.

Treatment and prevention. Due to the large amount of water and mineral salts left in the body during cholera, the body becomes dehydrated and the salts are reduced. Therefore, more sodium and potassium solutions will give good results.

Dehydration, blood transfusion, metabolic disorders in the body, decrease cardiovascular activity and lead to collapse, so blood, plasma or blood preparations are sent.

A diet is prescribed depending on the symptoms of the disease. Semi-synthetic tetrasticlin, levomycetin is injected into the patient's vein, and then orally. When treating with antibiotics, it is necessary to treat the isolated cholera vibrio taking into account which antibiotic it is sensitive to.

In recent years, the treatment of cholera with antibiotics with a wide range of effects: syflox, tarivid, piplastin, levomystetin, trimethoprimsulfamethoxazole and tetrasticlin has given good results.

Measures to be taken in the outbreak of cholera to prevent the disease:

1. Identification and registration of the first cholera patient, providing information to healthcare organizations.
2. Separation and hospitalization of patients and carriers of vibrio, carrying out bacteriological examination and control of those in contact with them.
3. Repeated disinfection of hospitals and cholera centers designated for cholera.
4. Introduction of quarantine.
5. Protection of water sources from damage.
6. Establishment of strict sanitary control in places where food is prepared, extermination of flies.
7. Regularly check water bodies by bacteriological method (Vibrio El-Tor multiplies well in warm water, especially in summer).
8. Strict adherence to personal hygiene, drinking boiled water.
9. Carrying out sanitary and educational work among the population.
10. Vaccination with killed cholera monovaccine or cholera anatoxin in special prevention. Currently, a chemical bivalent vaccine prepared from O-antigens of serovars Ogawa and Inaba and cholera toxoid has been obtained. This vaccine differs from previous vaccines in that it does not cause a reaction and can be taken orally, creating strong immunity. Those who are in contact with the patient and those who are suspected of having cholera r is given tetrasticlin for three days.

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