Some results of studies of reactogenic and antigenic properties of local vaccine and epizootic strains in laboratory animals.

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ABSTRACT

This article describes the harmlessness and antigenic properties of local strains of brucellosis used in the manufacture of diagnostic agents and vaccines against brucellosis, which are extremely dangerous for humans and animals, as well as in experiments conducted on laboratory animals.

Keywords: Infection, focus, diagnosticum, prevention, strain, reactogenicity, dissociation, virulence, hyperplasia, follicles.

Introduction.

Brucellosis - a chronic infectious disease of animals and humans, caused by bacteria, combined under the general name Brucella. Brucellosis causes significant damage to the national economy, which is aggravated by human disease.

For the diagnosis of brucellosis in animals of all species, serological research methods are most widely used: the agglutination reaction (AR) and the complement fixation reaction (CFR) or the long-term complement fixation reaction (LCFR).

In the context of the growing intensification of animal husbandry in Uzbekistan, the importance of planned specific prevention and diagnosis of diseases of farm animals and birds, timely identification of foci of infection, their elimination and maintenance of persistent epizootic and at the same time epidemic well-being is increasing.

In turn, the implementation of regular, planned diagnostic and specific measures depends on the availability of a sufficient number of vaccines and diagnostics, which should be provided by domestic production.

The epizootic and epidemiological situation for brucellosis in Uzbekistan remains not entirely favorable and is determined by the presence of brucellosis among farm animals - small and cattle, which are the main sources of the causative agent of this infection.

Therefore, in all countries of the world, it is important and paramount in the fight against this disease - the control and prevention of brucellosis.

The aim of our own research was to study the reactogenic and antigenic properties of epizootic and vaccine strains of brucella isolated in the local ecological conditions of Uzbekistan, the activity and specificity of domestic microseries of common brucellosis

antigens in AR and CFRs made from different strains of brucella.

In the vivarium of the laboratory of brucellosis of the Research Institute of Life Sciences, in accordance with the schedule of the work program on the topic: "Improvement of means and methods of serological and allergic diagnostics of animal brucellosis", we studied the harmlessness, (reactogenicity), antigenic properties of brucellosis vaccine strains Br.abortus 104M and Br.melitensis Rev-1 and epizootic strains Br.abortus 1/2017 and Br.melitensis 9 in white mice and guinea pigs. Suspension from strains Br.abortus 104M and 1/2017 UZ, Br.melitensis Rev-1 and 9 UZ was a suspension of live brucella in a protective medium. All tested strains were preliminarily tested for dissociation in a sample with acriflavine (1: 1000), thermo-agglutination reactions and microscopy according to the Kozlovsky method for bacterial purity. After meeting the requirements for these parameters, each strain was individually inoculated to white mice and guinea pigs subcutaneously. A total of twelve white mice and twelve guinea pigs were inoculated with three heads each with strains. The suspension was administered to white mice weighing 18-20 grams, subcutaneously at a dose of 250 million microbial cells in a volume of 0.25 ml, into the back. Guinea pigs weighing 370-450 grams in a dose of 1 billion microbial cells in a volume of 1 ml subcutaneously in the right groin area. The injection site was pretreated with a cotton swab soaked in 70% alcohol. For control used 3 white mice and 3 guinea pigs, which were not injected with the strains.

Observation of white mice was introduced for 10 days. During this period, no visible deviations from the physiological norm were observed in white mice. All mice remained active, their appetite was preserved, and no changes in appearance (tousled coat) were observed.

Guinea pigs were monitored for 25 days. During the observation period, no deviations from the physiological state were observed, all the guinea pigs were active, the appetite was preserved. After 25 days, blood was taken from the heart of all 12 guinea pigs, including control ones, and then subjected to autopsy for subsequent pathological study of the state of internal organs. As a result of postmortem examination of the heart, liver, spleen, retropharyngeal, inguinal, mediastinal, para-aortic lymph nodes, changes characteristic of brucellosis infection have not been established. The noted hyperplasia of individual spleen follicles in almost all gilts, except for the control ones, was a consequence of the body's immune restructuring.

The study of the antigenic properties of the strains showed that all tested strains have high agglutinogenicity $\sum x$ = 160-320 IU / ml.

Conclusion:

The studies carried out indicate that the tested suspensions from domestic strains Br.abortus 104M UZ, 1/2017 UZ and Br.melitensis Rev-1 UZ and 9 UZ are harmless (areactogenic), possess antigenic (agglutinogenic) properties and correspond to these indicators requirements for brucellosis antigens.

All work was carried out in compliance with the rules of asepsis, antiseptics and general safety rules.

The remains of the suspension used after inoculation, vials, test tubes, instruments, gloves were autoclaved at 1.5 ATM for one hour, overalls by boiling for 2 hours. Disposable syringes, cotton wool, corpses of mice and guinea pigs, the remains of feed and manure with bedding were destroyed by burning in a corpse incinerator.

List of used literature

1. Scientifically grounded system for the diagnosis of animal brucellosis. // Approved by the State Veterinary Committee of R. Uz. 2018 Nov.
2. Materials and methods FAO / WHO, 2018.
3. Zdradovsky P.F. "Brucellosis" // Modern teaching in relation to human pathology. Moscow publishing house 1953, p. 264
4. Alton, G.G. Standartization of agglutinating antigens for the diagnosis of brucellosis // Res.Vet.Sci/-1981, Vol.12, № 4, p.330-337.