WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 11, Nov., 2022

CAUSE AND PREVENTION OF BRUCELLOSIS

Amonov Sobirjon Baxtiyorovich
Assistant of the Termez Branch of the Tashkent Medical Academy

Annotation
The epidemiological situation in the Surkhandarya region for brucellosis over the past years does not tend to improve. The epizootic situation for brucellosis remains quite tense. Epizootic troubles for brucellosis and violations of sanitary and hygienic norms and rules in livestock breeding with brucellosis are the main reasons for the wide spread of this infection and economic losses in the livestock sector of agriculture. The problem of the incidence of brucellosis acquires paramount importance in the context of ongoing reforms in the agricultural sector aimed at increasing the number of farm animals (cattle, small cattle). Examples of the use of means of specific prevention of animal brucellosis in solving urgent problems in terms of preventing the spread of brucellosis infection among farm animals are given.

Keywords: brucellosis, brucella, vaccine, incidence, immunoprophylaxis, analysis, cattle, small cattle, lymph nodes.

Introduction

Brucellosis is a zoonotic infection transmitted from animals to humans through contact with infected animals or by eating infected meat, milk and dairy products. The causative agents of infection are small gram-negative bacteria - brucella, belonging to the II group of microorganisms pathogenic to humans and named after their discoverer - David Bruce. The danger is represented by 4 types of pathogen: B. abortus (in cattle), B. melitensis (in sheep and goats), B. suis (in pigs), B. ovis (in sheep and sheep). The most virulent and significant in the pathology of brucellosis are B. melitensis, B. suis, B. abortus (arranged in descending order of pathogenicity). Brucellosis of dogs is caused by brucella of the species B. canis, bush rats - B. neotomae. The three main types of brucella are divided into several biotypes. Human brucellosis is mainly caused by 3 species: B. melitensis, B. suis, B. abortus. It is relatively rare for a person to become infected with B. canis. Symptoms of brucellosis are different depending on the epizootic situation and the reactivity of the human body. In recent years, several more species of brucella have been identified, characteristic of cetaceans (B. ceti), pinnipeds (B. pinnipedialis), common vole (B. microti). These three species were reported by the Subcommittee on Taxonomy of

Brucella in September 2008, and brucella isolate, which is also species-specific, was isolated from baboons. The strain is named Brucella papionis [1].

Brucellosis occurs on all continents in most countries of the world. Especially in the countries of the Mediterranean, Eastern Europe, South and Central America, Africa, Central and South Asia, the Caucasus, the Arabian Peninsula, the Middle East. In these regions, brucellosis occurs mainly in cattle (cattle), small cattle (MRS), as well as in wild pigs, bison, moose, hares. To the most conservative estimates, more than 300 million of the 1.4 billion cattle in the world are infected with the causative agent of brucellosis. Chronic, often asymptomatic and prolonged brucellosis infection in animals makes it difficult to diagnose. Resistance to environmental factors and exceptional plasticity of the pathogen, the presence of sufficient relative post-infectious immunity, determine the entire complexity of the fight against infection [2].

The pathogenicity spectrum or host composition of brucella is very wide and includes a large number of species of mammals (including humans), as well as blood-sucking arthropods, mainly ticks. In addition, brucella can also infect hosts that are not peculiar to them, i.e. brucella are characterized by polypathogenicity. Carriers of brucella can be ticks, fleas, flies, mosquitoes, as well as birds, rodents and other animals. New species are isolated and differentiated, expanding the ecological niches of brucella [1].

The distribution area of brucella of different species is mainly associated with the range of the main host. At the same time, the confinement of certain species (or strains) of brucella to concret territories is often associated with human economic activity. The parasitic system of brucellosis is a complex system of interaction, including both the parasite itself (several species of brucella) and a numerous number of host species, both basic and facultative. This system includes two environmental parasites. The existence of one is supported by farm animals, the other by wild species. Frequent contacts of these groups of animals in the territories of grazing create a threat of expansion of anthropurgical (zooanthroponotic infectious (parasitic disease) foci [1].

Brucellosis bacteria are small coccoid (0.3-0.6 μm) or rod-shaped (0.6-2.5 μm) gram-negative microorganisms. They are motionless. They don't form an argument. Brucella of small and cattle have the form of cocci and coccobacteria, brucella of pigs - rods [3].

Virulent strains of brucellosis bacteria have a delicate microcapsule. Brucella are well stained with aniline dyes. E.V. Kozlovsky proposed to stain them with solutions of safranine and malachite green. When using this method, preparations for microscopy are prepared and fixed in a conventional way. Fixed preparations are stained with a

2% aqueous solution of safranine when heated on the flame of alcohol until vapors or bubbles appear. Then the preparations are cooled, washed with distilled water and additionally stained with a 1% aqueous solution of malachite or brilliant greens for 40-50 seconds. Brucella are stained red with safranine, and the remaining bacteria are stained with malachite (brilliant) green in green [4].

When infected, the incubation period lasts 2-4 weeks. If there are no pregnant animals among the susceptible livestock, the disease is usually asymptomatic. It is possible to diagnose the disease only when conducting serological and allergic research methods. The disease is accompanied by abortions in different periods of pregnancy, depending on the type of animal, bleeding from the genitals, retention of the afterbirth, endometritis, mastitis. The temperature rises, a decrease in body weight is observed. The defeat of the organs of reproduction entails a violation of the reproductive function, and sometimes infertility. Bursitis, arthritis, tendovaginitis, orchitis and epidymitis are also observed.[3]

The main causes of the occurrence and spread of brucellosis infection among farm animals are:

– Purchase and import of animals from other regions, which is not coordinated with the state veterinary supervision authorities, without quarantine measures;

– Purchase and import of feed from regions unfavorable for brucellosis, which is not coordinated with the state veterinary supervision authorities;

– Lack of proper control by the executive authorities over the movement and registration of livestock;

– Joint maintenance of animals of different species (cattle, MRS) in personal subsidiary farms; untimely delivery of sick animals for slaughter; –

– Joint grazing of animals of various species and the use of common watering places by animals from prosperous and unfavorable brucellosis farms.

Prevention of brucellosis is based on the implementation of the basic veterinary and sanitary rules for the protection of safe farms from the introduction of the causative agent of infection.

It is necessary to exclude the possibility of contact of a healthy livestock with a sick one, as well as various groups of livestock on pastures, places of mass gathering of animals and during transportation. It is necessary to carry out routine preventive diagnostic studies and vaccinations.

The most common for immunization of animals against brucellosis were live attenuated and inactivated vaccines. In addition to whole-cell vaccines against

brucellosis, preparations based on antigens isolated from brucella, recombinant and DNA vaccines are being developed. Abroad, the American live vaccine from the non-agglutinogenic strain B. abortus RB-51, which has stable biological and immunogenic properties, is widely used.

In recent years, in our country, small cattle are immunized mainly with a live vaccine from the strain of B. melitensisRev-1, much less - with a vacci-th of strain B. abortus 19, and large - with a vaccine from strain 82 B. abortus, less often - from strains of B. abortus 75/79-AB.

Analysis of the tactics of preventive vaccination and people from 2015 to 2019 allows us to divide the subjects of Surkhandarya region into five groups.

In the first group, 21% of small and 32% of cattle owned by farms of agricultural enterprises were immunized against brucellosis. Immunoprophylaxis of both species of animals was carried out regardless of the presence of a sick population of small cattle. In the Surkhandarya region, the formation of foci of sheep brucellosis was associated with unsanctioned importation of animals. The incidence of human brucellosis amounted to 24.2% of the total number of patients recorded in the country in the analyzed period. The analysis showed a slight decrease in the registration of fresh cases of brucellosis (by 1.2 times). Consequently, the conduct of immunoprophylaxis of small and cattle in farms of only one form of ownership (animals of agricultural enterprises) only restrained the further increase in the incidence of humans, but did not significantly affect it [6].

Zoonotic infections, which have become of great importance for public health in recent years, require the complexity of interdepartmental measures taken by the state veterinary and sanitary-epidemiological services in order to establish the causes of the disease, transmission factors and the breadth of susceptible contingents.

Only close, objective interaction of these services at all levels of supervision will create a reliable system for protecting infection and diseases of animals (the source and reservoir of zoonotic infections), and this, in turn, will further minimize the risk of developing infection in humans.

Literature

1. Gorchakova, N.G. Features of the parasitic system of brucellosis / N.G. Gorchakova // Scientific-research publications. - 2017. - № 4. p. 14.

2. R.Yu. Nasibullin, L.A. Tukhvatullina, Ya.A. Bogova, G.M. Safina - candidate of veterinary sciences, leading scientist, M.A. Kosarev- candidate of biological sciences, head of laboratory.

3. Konopatkin, A.A. Epizootology and infectious diseases of farm animals. / A.A. Konopatkin, I.A. Bakulov, Y.V. Nuikin et al. // Textbooks and textbooks for higher agricultural educational institutions.- M.: Kolos. - 1984. – 544 p.
4. Litusov, N.V. Causative agents of brucellosis. / N.V. Litusov // Illustrated textbook. – Ekaterinburg: Izd-vo UMMA, - 2012. - 38 p.
5. Sklyarov, O.D. Brucelloz / O.D. Sklyarov / Presentation // All-Russian State Budgetary Center for Quality and Standardization of Medicines for Animals and Feed (FGBU "VGNKI") - 25 slides.
6. Tsirelson, L.E. The state of specific immunoprophylaxis of brucellosis in the Russian Federation. / L.E. Tsirelson, M.M. Zheludkov, O.D. Sklyarov, V.N. Borovoy // Epidemiology and Vaccine Prophylaxis. - 2011- № 1 (56). p. 59.