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ABSTRACT BOOK and FINAL PROGRAMME

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SEROLOGICAL DIAGNOSIS OF CHLAMYDIA INFECTION IN CATTLE

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INTRODUCTION:

Chlamydia infection in cattle is widespread in many countries including Russia (1,2). Chlamydia are also a potential threat to human health. Investigations to find the best diagnostics of this infection are performed by researchers of many countries (3,4). The most accessible means of farm monitoring for chlamydia in Russia are serological methods, of which the Complement fixation test (CFT) with group-specific chlamydial antigen remains the main in veterinary medicine (1,2). Unfortunately this method has several disadvantages associated with low sensitivity, duration of test performance, etc. The aim of our investigations was to test a new antigen for the diagnosis of chlamydial infection in cattle by ELISA, to create on its basis a commercial diagnostic kit, followed by its testing and implementation into veterinary practice.

MATERIALS AND METHODS:

1708 cattle blood sera from 33 farms of Russian Federation infected with chlamydia were investigated. CFT was performed according to the standard technique using "Set of antigens and sera for serological diagnosis of farm animal chlamydiosis" manufactured in Federal Center for Toxicological, Radiation and Biological Safety (FCTRBS), Kazan, Russia. The results were assessed visually by the phenomenon of hemolysis of erythrocytes. Complete absence of erythrocyte hemolysis was evaluated as a positive reaction (4 crosses), and complete hemolysis, respectively, as a negative reaction. Indirect ELISA was performed using the "ELISA kit for diagnosis of cattle chlamydia infection" manufactured in FCTRBS, Kazan, Russia. Interpretation of ELISA results was conducted on spectrophotometer Bio-Rad Model 680 at a wavelength 490.

RESULTS:

In the 33 investigated farms clinical signs of chlamydia, such as abortion, stillbirth and birth of weak calves, pneumonia, enteritis in calves, as well as joint diseases were observed. 156/1708 (9.1%) animals reacted positive to chlamidiosis in the CFT. The titers of specific complement-fixing antibodies ranged 1:5 – 1:40 which correspond to the immune background of infected farms. 341/1708 (19.9%) animals reacted positive in the ELISA, with specific antibody titers ranged 1:200 – 1:3,200.

DISCUSSION AND CONCLUSIONS:

In comparative tests, the ELISA results showed a good correlation with the baseline test – CFT. The value of antibody titers in ELISA depended directly on the intensity of clinical signs of the disease in animals. In animals with acute course of chlamydiosis antibody titers were significantly higher than in animals with a latent stage of infection. In some cases, the results of serological tests confirmed in direct Immunofluorescence assay and by isolation of the pathogen in chicken embryos. These studies revealed that the ELISA has a higher sensitivity compared to the CFT. Twice more positive results were detected in the ELISA than in the CFT, which indicates the high efficiency of suggested test system.

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