

# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## Modern Views on the Problem of Intrauterine Infection Progeny Producing Animals.

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### ABSTRACT

Prenatal infectious include the processes that have arisen as a result of ante-or intrapartum infection. These infections are a group of diseases whose diagnosis is associated with certain difficulties. Therefore, to date, there are no clear data on the incidence of intrauterine infections. It should be assumed that the structure of mortality of newborn animals Congenital infections have a significant proportion. Not less important intrauterine infection with pathogens lifelong persistence. The lack of specific clinical manifestations, the possibility of "viral - bacterial - fungal" associations make the particularly important problem clear identification of the causative agent and determination of cause - effect relation of prenatal infections.

**Keywords:** intrauterine infection, the biological system of the mother-fetus-neonate, the agent, morbidity, mortality, susceptibility of maternal body.

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## INTRODUCTION

One of the main problems of modern veterinary perinatology remains intrauterine infection (IUI). According to domestic and foreign authors, IUI in more than 49% are responsible for antenatal and postnatal mortality. Depending on the causes, frequency of IUI can take a wide range of its realization [2, 3].

Among the individuals who underwent viral, bacterial and / or other infections during the period of gestation, the incidence of IUI is 55,4-60,0% [4, 6]. Observations of the newborn animal in the early postnatal period, produced over the last decade [1] suggest that this pathology, dramatically increasing perinatal their morbidity and mortality during the first days of life is becoming a major cause of violations of morphofunctional development, increased somatic and infectious diseases.

## RESULTS AND DISCUSSION

Modifying the immune system during the period of gestation, may be due to an increased risk of infection. Many latent infection can be activated during pregnancy. A number of researchers [1, 2, 8, 11] in his work clearly showed that infection is one of the leading factors trigger the launch of systemic inflammatory response followed by the inclusion of mechanisms for violation of tissue and cell respiration, blood clotting, vascular endothelial damage. As a result of the launch of these processes at the system level, develop microcirculatory disorders in the placenta with subsequent manifestation.

The special features of the pathogenesis of infectious diseases include the severity toxaemia, metabolic disorders, circulatory disorders in the mother-placenta-fetus [1, 4, 12].

Here are important concepts such as the type of pathogen, its virulence, the penetration of micro-organisms from the mother to the fetus, the tropism of the pathogen to the placenta, fetal organs and tissues [2, 11].

Of great importance is the similarity between the antigens of micro - and macro-organisms, reducing the biological foreignness infectious organism for the host and its immune system response to the presence of the antigen of the pathogen.

In a number of publications, proved tropism agents to specific embryonic tissue, is the perfect breeding ground for viruses and bacteria [7, 8, 9].

The course of infection during gestation affect the severity of functional and / or structural changes in the system of feto - placental complex (acute process or during an exacerbation, remission stage).

The most unfavorable is an acute infectious process and worsening of chronic [10, 12]. Notwithstanding the above, to date, it found that between the severity of infection in the mother and its manifestations in the fetus is not a direct correlation.

One of the key aspects in the implementation of IUI is the age gestational of the fetus at the time of infection. The outcomes of pregnancy are directly dependent on this factor, confirming the theory of critical periods of fetal development. A special role is played by the duration of exposure to the infectious agent. IUI realized 2-3 times more often at repeated and / or prolonged infection [4, 7, 10].

The main routes of infection of the placenta and fetus is transplacental, ascendant and pin (intrapartum). Hematogenous route of infection is observed in acute and recurrent viral infections, leading to the development of abnormalities in the early stages of gestation [2, 11]. Ascending path of infection is typical for bacterial infections and can be observed in case of premature rupture of membranes, and with intact membranes [1, 5, 9].

Contact (intranatal path) infection may be implemented as a viral and bacterial infections [3, 8]. The stage intrauterine development in time infection (pre-implantation, fetal, early and late fetal, neonatal and intraoperative), determines the nature and severity of the infection in the fetus. During placentation and organogenesis occur infectious embryopathy, forming the embryo malformations, or his death.

The risk for IUI increases under the influence of the following factors:

- the type of pathogen and its degree of virulence;
- the prevalence of infection;
- tropism of the pathogen to the tissues and organs of the fetus;
- the penetration of the pathogen;
- the duration of pregnancy;
- immunological potency of the fetus;
- the nature of the course of pregnancy;
- prenatal and intrapartum hypoxia.

With the implementation of intrauterine infection in the infectious process in the newborn marked low level of both specific and non-specific immune response factors [2, 3, 4].

It is necessary to take into account the fact that the infectious process can develop in the fetal period, and the immune system of the fetus (in the second half of pregnancy) can synthesize its own antibodies to substances with evidence of alien genetic information. It is not excluded the possibility of immunological tolerance.

The increased sensitivity of the fetus and the newborn against infections caused by various pathogens, determine by lack of systems of innate and adaptive immunity [1, 11].

The main factors that significantly increase the risk of prenatal and early postnatal infection are:

- Use for the reproduction of animals infected with infectious agents, as well as individuals with clinical evidence of disease or suspicious;
- Ignoring the results of serological tests in the selection of parental pairs and artificial insemination;
- Offspring obtained from mothers infected with pathogens, are not excluded from further economic use;
- Low level of sanitary culture of the hotels in maternity wards.

#### CONCLUSION

Thus, the source of infection to the fetus in most cases is the mother's body, infected by agents persistent chronic infections. Possible infection with immune system deficiency and the presence of foci of infection in pregnant animals. Such animals are apparently healthy, but stress switch "dormant" infection into the active form with the subsequent transmission of the pathogen. Risk factors for prenatal infections are not a full feeding, immunodeficiency, asymptomatic infection, mycotoxicosis.

Intrauterine infection is associated with impaired placental conditions of fetal development and abortion. If the fetus is nurtured until the end of pregnancy, the offspring born tolerant, infected and is characterized by symptoms of reduced viability.

#### REFERENCES

- [1] Galaktionov V.G. Immunology. - 3rd ed..and additional / V.G.Galaktionov // - M .: Publishing Center "Academy", 2004. 528 p.
- [2] Gaffarov H. Z. Mono - and mixed infectious diarrhea of newborn calves and piglets / H. Z. Gaffarov, AV Ivanov, EA Nepoklonov [et al.]; ed. H. Z. Gaffarova. - Kazan: FENG, 2002. 592 p.
- [3] Dzhupina S.I. Ways, mechanisms and factors of transmission of infection / S.I. Dzhupina // Scientific provision of veterinary problems in animal husbandry: Coll. scientific. tr RAAS. NIB. on-set. IEVS and LW. Novosibirsk. 2000, pp 382 - 393.
- [4] Dmitriev A.F. Intrauterine infection in the offspring of productive animals // Veterinary Pathology. 2012. № 2. p. 25-29.

- [5] Drozdova L.I. Pathology placental barrier of animals / L.I. Drozdova // Ekaterinburg UrGSHA 2010. 390 p.
- [6] The Basics of medical immunology / ed. A. Rabson, A. Roit, P. Delvz. M.: Bean, 2006. 319 p.
- [7] Pathological physiology / Ed. N.N. Zayko and Y.V. Bytsya. - 2nd ed. M.: MEDpress-Inform, 2004. 640 p.
- [8] Savchenko Y.I., Shilov, S.N. Postnatal development of the offspring of animals with burdened pregnancy / Y.I. Savchenko, S.N. Shilov Krasnoyarsk: Publishing House of the "Univers", 2002. 368 p.
- [9] Samujlenko A.Y. Infectious Pathology animal / A.Y. Samujlenko, B.N. Solov'ev, E.A. Nepoklonov, E.S. Voronin [et al.] - M.: ICC "Akademkniga" T. 1, 2006. 910 p.
- [10] Sokhin A.A. Methodological problems of infectious pathology and immunology // Kyiv: "Health." 1979. 160 p.
- [11] Syurin V.N. Samujlenko A.Y. Solov'ev B.V., Fomina N.V. Viral animal diseases. - Moscow, VNITiBP, 1998. 928 p.
- [12] Kharchenko E.P. Tolerance mother and fetus as a manifestation of the regulatory continuum plasticity and their immune systems. Dedicated to the memory I.P. Ashmarina / E.P. Kharchenko // Medical Immunology. 2011. № 2. p.121-132.