Research on Dynamics of Colostral Antibodies in Vaccinated Females Coming from her on 7 Days of Service

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Abstract. Evaluation of immunity acquired from her coming from females in pet can help in understanding the immunological reactions along specific infections and may contribute to the development of effective vaccines. The period immediately after birth is critical to the health and development of animals, whereas throughout this period the susceptibility to infectious diseases is high. To assess the dynamics of antibodies to colostral her mother coming from vaccinated at 7 days after service, were examined a total of 68 newborn puppies of different breeds of 15 nesting. At 24, 48, 72 hours and weekly for 6 weeks after birth, all the animals were examined clinically and have been taken: from samples of milk and colostrum/ from chicken blood samples (without tubes anticoagulated) and nasal discharge. Concentrations of IgG, IgA and IgM in serum and milk, nasal secretion have been measured with commercially available ELISA kits. In the first three days of life the dominant nasal secretion isotype of identified puppies was IgG, which is on the first day by 1.4 times, on the second day of 1.7 times and on the third day of 1.6 times larger than IgA. In the weeks 1, 2 and 3 of life the dominant isotype was IgA, IgG and IgA ratio: 0.3, 0.4 respectively. After the fourth week of life became the dominant isotype IgG. Concentrations of IgG in serum samples collected from cloves in the first six weeks of life declined gradually after the first day of colostrum level, up to the age of 5 weeks, after which it was found growing in the last two tests at 35 and 42 days. Concentrations of IgA in serum samples collected from cloves in the first six weeks of life have equal value in the first month of life, after which it was found to increase their value to an average of 17.1 ± 1.6 mg/ml were observed variations between concentrations of Ig highlights from one nest to another, and every chicken in the same nest both in samples of nasal discharge and serum This suggests existence numerous individual factors that influence the dynamics of titers serum antibody and the lining of the nose to the puppies.

Keywords: canine immunology, innate immunity, canine immune protection

INTRODUCTION

The period immediately after birth is critical to the health and development of animals, whereas throughout this period the susceptibility to infectious diseases is high. This high susceptibility is related to a multitude of factors that include awareness, immune system and susceptibility to immune- tolerant signals (Barrios et al, 1996). An alternative strategy for the provision of protection in the first moments of life against infectious diseases is maternal vaccination. In humans, the risk of medical, social and legal ones linked to immunization of
pregnant women make significant barriers in carrying out this process (Brent, 2003). In contrast, maternal vaccination has supported numerous animal species is practised for a long time and provides reasonable protection against specific pathogens of disease. In dogs, in addition to the transfer of development through colostrum IgG, a passive immunity is afforded the fetal and over the last third of pregnancy (Jupp et al., 2000). IgM in dogs has been isolated from bronșică secretion and colostrum adult dogs (Thompson and Reynolds, 1977; Done, 1988), but its concentration in nasal secretion level has not been sufficiently studied to her in the first 6 weeks of life. On the other hand, the clove's mortality in the first three weeks of life range from 7 to 34% (Mosier, 1981; Nelson and Couto, 1998; Dumon, 1998), and in this context research concentrations of Ig in the lining of the nose may help understanding the immunological reactions along specific infections and may contribute to the development of effective vaccines.

MATERIAL AND METHOD

In was examined a total of 68 newborn puppies of different breeds of 15 nesting. Females had the status of pets belonging to different owners. Bitches have been vaccinated against the disease, infectious hepatitis, Carre leptospirosis and parvovirus. At 24, 48, 72 hours and weekly for 6 weeks after birth, all the animals were examined clinically and have been taken: from samples of milk and colostrum/from chicken blood samples (without tubes anti-coagulated) and nasal discharge. Nasal secretion harvesting was carried out by means of fine sterile pads (urethral) by introducing and twisting their mildly every septic nasal. Subsequently they were immersed in sterile collection tubes which previously were introduced 500 ml 0.9% saline.

Concentrations of IgG, IgA and IgM in serum and milk, nasal secretion have been measured with commercially available ELISA kits (Dog IgA-IgG-IgM-Quantitation and Kits, Lab Bethyl. Inc., USA). He used an ELISA reader Elx800 (BioTek, USA, and the data processing was done with Gen5 software (BioTek, USA).

RESULTS AND DISCUSSION

In the present study was pursued General Dynamics to clove's colostral immunity in the first 6 weeks of life, in conjunction with the offer "immunological" of each for females. The results have been transposed graph in figures 1, 2 and 3.

Fig. 1. The dynamics of media concentrations of IgG (ng/ml) obtained from nasal pads samples collected from puppies during the first 6 weeks of life
Analyzing the results of the assessment of concentrations of IgG and IgA immunoglobulins of the nasal secretion of puppies has noticed that their values have decreased significantly over the first two weeks of birth. In the present study, the report of the IgG IgA: nasal secretion was much in favour of IgG along the first three days of life, beginning with the seventh day of life and up to 3 weeks to be dominant IgA. After 4 weeks, IgG has returned the dominant isotype in nasal samples under investigation. Average concentrations of IgM tend to increase until towards the end of the investigation. It seems that the dog, small quantities of IgG may be transferred and via placenta (less than 5% of the normal values of an adult). This fact increased values of colostrum IgG may explain the increased concentrations of IgG nasal secretion during the first three days. A similar situation on IgG of dominance over the first three days of life has been described and to sully the (Sheoran et al., 2000).

In this study, have been less focused on IgM in nasal secretion from cloxes over the first three weeks of life, which correlates with the period of maximum susceptibility to bacterial infections. However, the role of IgM in defense immune from canine respiratory system level is still unclear (Shofer et al., 1990), but it has been suggested that it would be most effective in preventing bacterial infections (Poffenbarger et al., 1991). Although immune defences against infectious agents to the respiratory tract is mediated at a reduced rate only by Ig (Done, 1988), the ability of the IgM (Thompson and Reynolds, 1977) to prevent bacterial infections should be investigated in the future.

The results obtained from the analysis of the concentrations of immunoglobulins in serum puppies were presented graphically in figures obtained results represented in figures 4, 5, and 6.
Average concentrations of IgG, IgA and IgM in serum for puppies decreased during the first two days after birth, but there were also individual differences. So analysing concentrations of IgG to the entire batch of puppies under investigation are retained the following mean values and standard deviations. 24 hours of IgG concentration was on average 18.6 ± 5.7 mg/ml after 48 hours the concentration of IgG was averaging 14.7 ± 4.9 mg/ml after 72 hours of IgG concentration was on average 12.4 ± 3.8 mg/ml after 7 days the concentration of IgG were on average 9.6 ± 3.2 mg/ml after 14 days of IgG concentration was on average 6.2 ± 2.5 mg/ml After 21 days of IgG concentration was on average 4.7 ± 1.9 mg/ml after 28 days of IgG concentration was on average 3.8 ± 1.6 mg/ml after 35 days of IgG concentration was averaging 13.3 ± 2.9 mg/ml after 42 days of IgG concentration was on average 17.7 ± 3.7 mg/ml.
Concentrations of IgA in the entire batch of puppies under investigation are retained the following mean values and standard deviations. 24 hours of IgA concentration was on average 6.2 ± 1,6 mg/ml after 48 hours of IgA concentration was on average 4.7 ± 1,4 mg/ml after 72 hours of IgA concentration was on average 3.6 ± 1,4 mg/ml concentration after 7 days of IgA was on average 3.1 ± 1.7 mg/ml after 14 days of IgA concentration was on average 5.4 ± 1.0 mg/ml. After 21 days of IgA concentration was on average 7.7 ± 1.0 mg/ml after 28 days of IgA concentration was on average 11.5 ± 2.6 mg/ml after 35 days of IgA concentration was on average 15.6 ± 2.1 mg/ml concentration after 42 days of IgA was averaging 17.1 ± 1,6 mg/ml.

Concentrations of IgM to the entire batch of puppies under investigation are retained the following mean values and standard deviations. 24 hours of IgA concentration was on average 0.3 ± 0.1 mg/ml after 48 hours of IgA concentration was on average 0.2 ± 0.1 mg/ml after 72 hours of IgA concentration was on average 0.1 ± 0.1 mg/ml concentration after 7 days of IgA was on average 0.1 ± 0.2 mg/ml after 14 days of IgA concentration was on average 0.1 ± 0.1 mg/ml After 21 days of IgA concentration was on average 0.1 ± 0.1 mg/ml after 28 days of IgA concentration was on average 0.1 ± 0.1 mg/ml after 35 days of IgA concentration was on average 0.4 ± 0.1 mg/ml after 42 days of IgA concentration was on average 1.0 ± 0.2 mg/ml.

Comparing these results with those obtained from nasal secretion has not noticed significant correlations.

Major change: IgG IgA reports over the first six weeks of life can be caused by the gradual increase of the immune response to antigens (Shifrine et al., 1971, Lewis et al., 1973, Winters, 1981), humoral immune response increases with the increase in the elderly (Jacoby et al., 1969), and half life of immunoglobulins in canine serum, which is 6 days for IgG four days to two days for IgM and IgA (Banks, 1982). The dog, the proportion of local and Ig synthesized from serum is unknown. There is information available on the distribution and quantity of producing cells in the lining of the Gi in different moments after birth. This could be an explanation of the fact that there is a correlation between the serum concentrations of Ig and nasal secretion on her.

To assess concentrations of immunoglobulins in the milk, the highest concentrations of Ig have been identified in colostrum. The results were plotted in figures 7, 8 and 9.

![Fig. 7. Titers dynamics of IgG (mg/ml) of mammary secretion in the first six weeks after birth to 15 in lactating bitches](image-url)
Analyzing the dynamics of these concentrations, note that the IgG was a progressive decline in values starting from the third day and up to the sixth week after birth, while concentrations of IgA and IgM are beginning to decline after only 24 hours. Unlike IgG concentrations of IgA recorded in this study were much lower, while the average concentrations of IgM remained generally steady, with the trend increasing towards the end of the study. Concentrations of Ig in colostrum and milk of dog was on values similar to those caused by the reaction of radial Immunodiffusion in earlier studies (Reynolds and Johnson, 1970; Winters, 1981; Poffenbarger et al., 1991; Bouchard et al., 1992), only for IgG were obtained higher concentrations. This data suggests that the majority of puppies included in the study, of intake beneficiaed qualitatively and quantitatively the colostrum milk and optimal parameters.

CONCLUSIONS

- In the first three days of life the dominant nasal secretion isotype of identified in puppies was IgG, which is on the first day by 1.4 times, on the second day of 1.7 times and on the third day of 1.6 times larger than IgA. In the weeks 1, 2 and 3 of the dominant isotype life was IgA, IgG and IgA ratio: 0.3, 0.4, 0.4 respectively. After the fourth week of life became the dominant isotype IgG.
- Concentrations of IgG in serum samples collected from cloves in the first six weeks of life declined gradually after the first day of colostrums period, up to the age of 5 weeks, after which it was found growing in the last two tests at 35 and 42 days.
• Concentrations of IgA in serum samples collected from clove in the first six weeks of life have equal value in the first month of life, after which it was found growing at an average of 17.1 ± 1.6 mg/ml.

• Concentrations of IgM in serum samples collected from clove in the first six weeks of life had the lowest among all the isotype, with a significant increase towards the end of the investigation.

• The values of IgG, IgA and IgM obtained samples of colostrum harvested from 24 hours after calving correlate with media titers immunoglobulins found in the nests of chicken thereof, demonstrating the role played by the quantity and quality of colostrum in the provision of increased titers of immunoglobulins in chicken.

• The outstanding variations were observed between the concentrations of the Ig from one nest to another, and every chicken in the same nest both in samples of nasal discharge and serum. This suggests the existence of numerous individual factors that influence the dynamics of titers serum antibody and the lining of the nose to the puppies.

REFERENCES