

Dynamic changes of immunoglobulin concentrations in pig colostrum and serum around parturition

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Abstract

The aim of the study was the determination of IgA, IgM and IgG concentrations in porcine serum and colostrum, in order to evaluate their variations in the perinatal period, as well as to clarify whether there is a correlation between colostrum intake, initial level of immunoglobulins (Ig) in piglet serum and development of their own immunity. The mean IgA, IgM and IgG concentrations in sow serum 10 days before parturition were 1.58, 6.12 and 39.56 mg/ml, respectively. Seven days later only the IgG level was insignificantly lower (34.94 mg/ml, $p=0.55$), while concentrations of IgA and IgM increased to 2.25 and 7.25 mg/ml, respectively ($p=0.23$ and 0.62 , respectively). The mean initial IgG concentration in colostrum at farrowing was 118.5 mg/ml and differed between sows. The average value of IgA in colostrum at birth was 23.8 mg/ml and decreased to 7.85 mg/ml at 6 hours (h) and to 4.59 mg/ml at 24 h after the onset of farrowing. IgM concentration at birth was 12.1 mg/ml and decreased to 4.23 mg/ml at 24 h postpartum. Positive relationships were found between concentrations of IgM and IgA in serum of piglets at 14 and 56 days of life ($r = 0.41$ and 0.80 , respectively, $p \leq 0.05$) as well as for IgG concentration in the piglets serum at 7 days and 56 days of age ($r = 0.48$, $p \leq 0.05$). The above observations suggest that there is a correlation between the level of Ig in piglet serum in the first days of life and improvement of their own immunity.

Key words: pigs, serum, colostrum, immunoglobulins, immunity, development