THE APOPTOSIS STATUS OF COWS MAMMARY GLANDS' SECRETION DURING DIFFERENT PERIODS OF LACTATION

V. Yablonsky*, M. Zhelasky**

*National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine
**State Agrarian and Engineering University in Podilya, Kamyanets-Podilsky, Ukraine
dcgmm@mail.ru

Cell factors of immune protection and the research of immunocompetent cells is very important nowadays for applied clinical immunology. Modern scientific data about main factors and immune mechanisms of local immune protection of cows’ mammary gland are represented in this article.

The aim of our study was to analyse some indications of immune mechanisms of udder protection during different lactation periods as well as apoptosis immunocompetent cells.

It was stated by scientists that cytological balance of these cells has dynamical fluctuation, which as we believe is connected with the morphological and functional restructuring in cows’ bodies (and in particular in udder) during lactation. It was also proved that at the end of lactation (during dry off time) the intensive migration of neutrophil granulocytes takes place into the mammary gland’s parenchyma. Moreover the number of transformed macrophages (histocytes) increases. It means that cell factors and immune mechanisms of local immune protection of mammary gland are being activated that was proved during the estimation of functional characteristics of immune protection.

The authors have found out, that during the 3\textsuperscript{rd}-5\textsuperscript{th} day of lactation phagocyte cells had the highest antimicrobial potential. The total amount of MPO + (82.12±0.78 %) and NBT + (77.72±0.87 %) neutrophils in cytoplasm of colostrum was at that time the highest. Later during the dry off time the total number of phagocyte cells with the granules of myeloperoxidase was slowly increasing (p<0.001), together with CLI (2.53±0.17 %, p<0.01). It was confirmed that during the whole lactation period the apoptosis of immunocompetent cells takes place. Neutrophil granulocytes were the most sensitive to apoptosis induction. Monocytes and lymphocytic cells were firmer. Apoptosal changes were in immunocompetent cells, which have lost its functional activity, that was dynamically changing during all periods of lactation. The signs of apoptosis were presented by the core cytoplasm fragmentation and vacuolization. Traces of cytolysis of immune cells were found very often in microslides.

Cows, mammary gland, local immunity, cellular and humoral factors of protection, immunocompetent cells, mastitis, apoptosis, immune homeostasis