

NEUTROPHILS EXTRACELLULAR TRAPS FORMATION AND REACTIVE OXYGEN SPECIES (ROS) PRODUCTION BY MILK IMMUNE CELLS FROM CAMELS WITH SUBCLINICAL MASTITIS

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ABSTRACT

Subclinical mammary gland infections are within the most important infectious diseases in dromedary camels with high impact on milk production and animal health. Using flow cytometry, the present study analysed the capacity of milk phagocytes to form neutrophil extracellular traps (NETs) and to produce reactive oxygen species (ROS) *in vitro*. Based on the California mastitis test, clinically healthy camels were divided into animals with subclinical mastitis ($n = 5$) and camels with healthy mammary gland ($n = 5$). The *ex vivo* ROS production and the NETs formation activity of milk phagocytes were compared between healthy and affected animals. A basic fraction of phagocytes ($10.0 \pm 1.7\%$ of total cells) with positive staining with the NETs-sensitive dye SYTOX™ Green was detected in milk samples from healthy camels. The NETs-positive fraction was significantly lower in milk from camels with subclinical mastitis ($4.8 \pm 1.5\%$ of total cells) compared to milk samples from healthy camels. Stimulation of milk cells with the gram-negative bacteria *E. coli* resulted in enhanced ROS production in milk phagocytes from both healthy and affected camels. The two groups, however, did not differ in the ROS level in their unstimulated or stimulated phagocytes. In conclusion, the present study identified basic levels of NETs formation by milk phagocytes separated from healthy camels. The reduced NETs formation by cells from infected camels may play a role in the pathogenesis of subclinical mammary gland infections in camels.

Key words: Camel, flow cytometry, immune cells, milk, Neutrophils NETosis, ROS