DOI : 10.5958/2277-8934.2019.00015.8 *Vol 26 No 1, p 105-110*

WHOLE BLOOD STIMULATION WITH LIPOPOLYSACCHARIDE MODULATES PHENOTYPE AND FUNCTION OF DROMEDARY CAMEL NEUTROPHILS

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ABSTRACT

Neutrophils play a key role in innate immunity mainly by phagocytosis and subsequent killing of bacteria. Different factors including pathogen-associated molecular patterns have modulating effects on the phenotype and function of neutrophils. The objective of the current study was to evaluate the impact of whole blood stimulation with bacterial lipopolysaccharide (LPS), the main molecular pattern associated with gram-negative bacteria, on phenotype and function of neutrophils in dromedary camel. Neutrophil shape change, the expression of adhesion molecules, phagocytosis and production of reactive oxygen species (ROS) were analysed by flow cytometry. In LPS-stimulated blood, neutrophils changed their FSC and SSC characteristics and showed modulated expression pattern of different cell adhesion molecules. In addition, LPS stimulation reduced the percentage of phagocytosis positive neutrophils as well as the number of bacteria phagocytosed by each neutrophil. However, neither the ROS production activity of unstimulated neutrophils nor the bacteria-induced ROS production were affected by LPS stimulation. Together, these results imply that phenotype and function of camel blood neutrophils are modulated by LPS stimulation.

Key words: Adhesion molecules, camel, innate immunity, lipopolysaccharide, neutrophils, phagocytosis, ROS