

Leukogram changing of Holstein calves response to acute inflammation due to experimental Colisepticemia

Mokhber Dezfouli, M.R.¹; Lotfollahzadeh, S.²; Heidari Sureshjani, M.³; Eftekhari, Z.⁴; Arab Yarmohammadi, M.⁵ and Jani, M.⁵

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Abstract

Colisepticemia is an acute fatal disease that occurs primarily in calves less than 2 week's age and in calves with failure of passive transfer, and cause heavy economic losses to husbandry industries. Primary signs of septicemia is nonspecific and cannot be differentiated from non-infectious diseases or diseases with local infection such as diarrhea. Leukogram is a key laboratory tool to evaluate neonates suspected to septicemia in which supplies valuable diagnostic information for clinician next to physical examination. In this study, colisepticemia was induced with *Escherichia coli* strain of O111:H8 in 10-day bull Holstein calves weighting 50 ± 50 Kg. so, suspension of bacteria in normal saline, containing 1.5×10^9 CFU, was given intravenously through the jugular vein. Leukogram changing was examined from before 24 hours of bacterial injection till 24 hours after that. Leukopenia, neutropenia, lymphopenia, eosinophilia, thrombocytopenia and increase of PCV, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and hemoglobin, and decrease in red blood cell count was observed significantly associated with septicemia beginning ($P < 0.05$). Changing of mean corpuscular hemoglobin concentration (MCHC) and plasma fibrinogen and total protein were not significant ($P > 0.05$). Total protein: fibrinogen ratio altered from >15 at 0h to <10 at 8h after challenge. In conclusion, changing of blood proteins and cells was related to systemic inflammatory response due to experimental colisepticemia in calves. Leukogram interpretation based on reference ranges appropriated to specie, breed, age, sex and environment can be useful to confirm or reject the disease and thus, guiding the therapy and give prognosis.

Key word: Calf, Colisepticemia, Leukogram, Blood protein

1- Professor, Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

2- Associate Professor, Department of Clinical Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

3- Expert of Livestock Disease Diagnosis of Iran Veterinary Organization, Central Veterinary Laboratory, Tehran, Iran

4- Assistant Professor, Research and Production Complex Institute of Pasteur, Tehran, Iran

5- DVM Graduated from Faculty of Veterinary Medicine University of Tehran, Tehran, Iran

Corresponding Author: Heidari Sureshjani, M., E-mail: Heidari_m90@ut.ac.ir

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