ICVAS 2018

4th International Congress on Veterinary and Animal Sciences
12-15 July 2018, Nevşehir - Turkey

CERTIFICATE OF ATTENDANCE

This is to certify that

Süleyman KOZAT

has participated in "**IV. International Congress on Veterinary and Animal Sciences**" organized by Mississippi State University and Nobel Science Research Center, Nevşehir, TURKEY on July 12 - 15, 2018.

Assoc. Prof. Dr. Attila KARŞI
Chairman of Congress

MISSISSIPPI STATE UNIVERSITY

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2018



4th International Congress on Veterinary and Animal Sciences

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13 July 2018, THURSDAY, Seminar Hall 1		
8		**SESSION - 8** **SESSION MODERATOR**
8.1	18:00	**The Independent Spirit of Turkey: Wild Horse** **Özlem Hacan[1], Serdar Koçak[1], Koray Çelikeloğlu[1], Zehra Bozkurt[1], Metin Erdoğan[1], Mustafa Tekerli[1]** [1]Afyon Kocatepe University
8.2	18:10	**The effect of buserelin acetate on in vivo bovine uterine contractility at estrus** **Halef Doğan[1] , Muhterem Aydın[1]** [1]Fırat University
8.3	18:20	**Intercellular adhesion molecule-1 (ICAM-1) and C-Reactive Protein (C-RP) levels in Calves Naturally infected with Mycoplasma bovis** **Süleyman Kozat[1], Cumali Özkan[1]** [1]Yüzüncü Yıl University
		Coffee Break **Discussion**

4th INTERNATIONAL CONGRESS on VETERINARY and ANIMAL SCIENCES

MISSISSIPPI STATE UNIVERSITY

ACCEPTANCE LETTER

Dear **süleyman kozat, cumali özkan,**

4th International Congress on Veterinary and Animal Sciences is pleased to inform you that your paper entitled "**Intercellular adhesion molecule-1 (ICAM-1) and C-Reactive Protein (C-RP) levels in Calves Naturally infected with Mycoplasma bovis**" has been accepted for **Oral** presentation at the ICVAS 2018 conference. This decision is made based on a double - blind peer review process. The conference will be held in Nevşehir, Turkey on July 12-15, 2018.

Authors of accepted papers are invited to register, make payment, attend and present their research paper at one of the conference sessions.

On behalf of the organization committee I would like to congratulate you. Looking forward to seeing you at the conference.

Best Regards,

Attila Karsi

Dr. Attila Karsi
Chair of the Congress
Mississippi State University

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Intercellular adhesion molecule-1 (ICAM-1) and C-Reactive Protein (CRP) levels in Calves Naturally infected with *Mycoplasma bovis*

Süleyman KOZAT[1]* Cumali ÖZKAN[1]
[1]Department of Internal Medicine, Faculty of Veterinary Medicine, University of VanYuzuncu Yil, 65080 Van, TURKEY

*Corresponding Author
E-mail:skozat@hotmail.com

Abstract

Mycoplasma bovis is one of the most important pathogens causing pneumonia worldwide. In this study, it was aimed to determine intercellular adhesion molecule-1 (ICAM-1) and C-reactive protein (CRP) levels in calves infected with *Mycoplasma bovis*. The animal material of the study consisted of 30 calves including 20 simmental calves with pneumonia due to *Mycoplasma bovis* at 2-4 months of age and 10 healthy calves at the same age and the race. Serum levels of intercellular adhesion molecule-1 (ICAM-1) and C-reactive protein (CRP) were determined in calves infected *M. bovis* and control group. Serum levels of intercellular adhesion molecule-1 (ICAM-1) and C-reactive protein (CRP) were found to be statistically higher in the calves with pneumonia than in the control group ($P<0.01$). A positive correlation between serum ICAM-1 concentrations and *Mycoplasma bovis* titers (increases in coefficient ratios) were statistically significant ($r=0.664$), indicating a positive correlation between serum ICAM-1 and CRP levels and titers of *Mycoplasma bovis* in the calves with pneumonia. As a result, it was observed that serum intercellular adhesion molecule-1 (ICAM-1) and C-Reactive Protein (CRP) concentrations were increased in infected pneumonia with *Mycoplasma bovis*. It is considered useful to consider these parameters in evaluating the prognosis of pneumonia cases of *Mycoplasma bovis* origin and the efficacy of applied treatment.

Keywords: Calf, *Mycoplasma bovis*, C-Reactive Protein, Intercellular adhesion molecule-1

INTRODUCTION

Mycoplasma bovis is a common reason of acute respiratory disease mostly affecting young calves (Abdeen et al.,2017). Bovine respiratory disease (BRD) continues to be the most economically significant disease in feedlots and one of the most important causes of morbidity and mortality in dairy calves and veal calves in veterinary medicine, animal husbandry, and animal welfare (Abdallah et al., 2016). *Mycoplasma bovis*-associated pneumonia occurs in cattle, including dairy and beef calves, beef cattle after arrival at a feedlot, and adults at any age (Hayman and Hirst 2003). *Mycoplasma bovis* is a particularly important cause of calf pneumonias (Nicholas,2004). Especially young calves under 4 months of age are at increased risk for pneumonia caused by *M. bovis* (Soehnlen et al., 2012). Mycoplasma infection is characterized by clinical symptoms of pleuritis and pneumonitis, mastitis, arthritis, keratoconjunctivitis, otitis, fever, asphyxia, depression and pathological symptoms (Hale et al., 1962; Pfutzner and Sachse, 1996; Sun et al., 2014). *Mycoplasma bovis* infection causes significant economic losses in calves such as body weight loss, medical treatment expenses and death in European countries and America. In Europe, it is reported that about 25-33% of pneumonic calf cases are stem from *Mycoplasma bovis*. Likewise, in the USA, it is stated that the rate of *Mycoplasma bovis* origin is increased up to 70% and the annual loss of *Mycoplasma bovis* is 140 million dollars (Tschopp et al., 2001; Nicholas and Ayling 2003; Caswel and Arehambauh, 2007).

The Intercellular Adhesion Molecule-1 (ICAM-1) has a central role in the regulation of cellular inflammatory responses. ICAM-1, which is expressed in endothelial cells, is one of the major cell surface glycoproteins that contribute to cell adhesion processes (Bevilacqua, 1993).

Acute phase proteins (APPs) play major roles in several aspects of the systemic reaction to inflammation, including the opsonization of several pathogens, the scavenging of potentially toxic substances and the overall regulation of different stages of inflammation (Petersen et al., 2004; Ceciliani et al., 2012). APPs are already used as markers of disease in veterinary clinical chemistry (Petersen et al., 2004). The first acute phase protein to be recognised, over fifty years ago (Tillett and Francis,1930), was C-reactive protein (CRP), which in man has become the most important analyte providing diagnostic information on the presence of inflammatory lesions, on the prognosis of the condition and on the response to treatment (Pepys and Baltz, 1983, Gabay and Kushner, 1999). CRP in man is a major APP, with its concentration increasing over 200 times from a low, virtually negligible, normal level (Eckersall, 2000).

The aim of this study was, therefore, to perform a systematic review/meta-analysis concerning selected ICAM-1 and CRP as diagnostic tools for calves infected naturally with *Mycoplasma bovis* when compared with the reference standard used to prognosis and treatment of *Mycoplasma bovis*.

MATERIALS AND METHODS

The animal material of this study; a total of 30 calves, including 10 simmental calves with pneumonia, 1-6 months of age and a control group of 10 healthy calves of the same age and descent, who were brought to the clinic of Van Yuzuncu Yil University Veterinary Medicine Internal Medicine clinic with respiratory system complaint. General clinical examinations of the study and control group of the animals were performed and the body temperature, respiration and heart frequency of the animals were determined. At the same time, the history of the animals were obtained whether they received any antibiotic treatment had been administered in the past. As a result of the anamnesis, antibiotic-applied calves were treated earlier and were not included in the study. In order to perform biochemical analyses, blood samples from vena jugularis were taken to anticoagulant free tubes from all the calves.