

THE RELATIONSHIP OF CYTOKINES LEVEL IN SERUM AND ORTHOPAEDIC ASSESSMENT OF DOGS WITH HIP OSTEOARTHRITIS

Thitichai Jarudecha¹, Monchanok Vijarnsorn^{1*}, Narudee Kashemsant², Chalernpol Lekcharoensuk¹

¹*Department of Companion Animals Clinical Sciences, Faculty of Veterinary Medicine, Kasetsart University, Bangkok 10900, Thailand*

²*Department of Physiology, Faculty of Veterinary Medicine, Kasetsart University, Bangkok 10900, Thailand*

***Correspondence:** *monchanok.vi@ku.th*

Abstract

Introduction: The assessments of orthopaedic parameters including peak vertical force (PVF) measured by force plate gait analysis and lameness score were widely used in osteoarthritis (OA) researches. The measurements of particular cytokine concentrations in serum may be useful to gauge the degree of inflammation in osteoarthritic patients. However, the relationships between PVF and cytokine levels are still controversial. Further investigations in canine patients with OA are needed to confirm the usefulness of serum cytokines in clinical evaluation of osteoarthritic dogs

Objectives: To evaluate relationship between PVF and serum cytokine level as well as lameness score in dogs with hip osteoarthritis.

Methods: Fifteen dogs with hip osteoarthritis were undergone orthopaedic assessment including measurements of PVF and orthopaedic assessment score at week 0, 2 and 4. Blood samples were collected at each evaluation time for the measurements of serum IL-6, IL-8, IL-15, IL-18 and MCP-1. The canine cytokine magnetic bead panel kit (MILLIPLEX[®]) were used to analyse the samples using flow cytometric and chemiluminescence methods (Luminex 200[™]) and correlations were examined by Spearman's rank test.

Results: Concentrations of IL-6, IL-8, IL-15, IL-18 and MCP-1 in serum from all dogs did not significantly correlate with PVF. However, there was a significant correlation between lameness score and PVF with $r = -0.63$ ($p = 0.00$).

Conclusions: The significantly negative correlation between PVF and lameness score was detected but not the concentration of cytokines in serum in this study. The measurements PVF and lameness score remained the methods of recommendation for evaluations of osteoarthritic dogs.

Keywords: Peak vertical force, cytokines, orthopaedic, force plate, hip, osteoarthritis, dogs