Expression of the GPIIb/IIa Receptor on Canine Platelets with Naturally Occurring Monocytic Ehrlichiosis: Pre- and Posttreatment with 6-weeks of Doxycycline

Sanga Boonsoda  Sukanya Phalitakul  Acharawan Lohawanijaya

Faculty of Veterinary Medicine, Mahanakorn University of Technology, Nong Chock, Bangkok, Thailand 10530.

Introduction and Objective

Canine monocytic ehrlichiosis (CME) is a tick born disease caused by the *Ehrlichia canis*. Thrombocytopenia is the most prominent and consistent hematological change. Dogs that recover from severe thrombocytopenia still show bleeding tendencies, which suggest that platelet dysfunction is present (1). GPIIb/IIa or CD41/CD61 complex, a glycoprotein platelet surface receptor, plays important role in platelet aggregation and clot retraction (3). The aim of this study was to evaluate the expression of the CD41/CD61 complex in naturally occurring CME before and after 6 weeks of doxycycline treatment.

Materials and Methods

Blood samples from 8 dogs that had been naturally infected with *Ehrlichia canis*, the presence of morulae of *Ehrlichia canis* in the cytoplasm of mononuclear cell and positive of ELISA kits test were selected for this study. Doxycycline (10 mg/kg as a loading dose and then 5 mg/kg PO SID for 6 weeks) was prescribed for every dog. Blood samples from each dog were made pre-and post treatment. Changes in the specific markers of platelet activation by use of adenosine diphosphate was determined (2). Cell staining was performed using antihuman CD41- and CD61-FITC. Measurement of platelet activation with CD41/61 expression was performed using a FACSCalibur flow cytometer with MacIntosh CellQuest software. Platelets were identified and gated by their characteristic forward and side scatter. Changes in surface specific markers of platelet activation in pre- and post treatment were compared.

Results and Discussion

Flow cytometric assay demonstrated that that expression of CD41 and CD61 of the pretreatment samples (63.8%±3.5% and 78%±6.5%) were lower than posttreatment samples (86.5%±7.2 %) and 89%±5.3%). The results suggest that low GPIIb/IIa expression may be a contributing factor to platelet dysfunction in CME. These findings suggest that 6 weeks of doxycycline treatment may help CME dogs recover from platelet dysfunction.

Fig 1. Flow cytometric analysis of the antigen recognized by CD41 in pre- (left) vs. posttreatment (right).

References