Treatment of Neonatal Foals With Immunostimulants Enhances Phagocytic Cell Activity Against Ex Vivo Infection With *Rhodococcus equi*

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Treatment of neonatal foals with immunostimulants enhances the activity of neutrophils and macrophages after ex vivo infection with *Rhodococcus equi*. Authors’ address: Department of Large Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, PO Box 100136, Gainesville, FL 32610; e-mail: gigueres@vetmed.ufl.edu. © 2008 AAEP. *Presenting author.

1. Introduction

Pneumonia caused by *Rhodococcus equi* is endemic on many farms. Studies in adult horses or weanlings have indicated that immunostimulants decrease the incidence of respiratory disease. We hypothesized that immunostimulants enhance killing of *R. equi* by phagocytic cells.

2. Materials and Methods

Seventeen foals received Zylexis,a EqStim,b or saline on days 7, 9, and 15 of life. Blood and bronchoalveolar lavage (BAL) cells were collected on days 7 (pre-treatment), 19, 31, and 43. Neutrophil phagocytosis and oxidative burst in response to *R. equi* infection was assessed using a flow cytometric assay. Intracellular proliferation of *R. equi* within macrophages was assessed by light microscopy for samples collected on days 7 and 19.

3. Results and Discussion

Neutrophils from foals treated with inactivated parapoxvirus ovis a had significantly greater ability to phagocytize opsonized *R. equi* and undergo oxidative burst on days 19 and 31 compared with baseline values. On day 31, foals treated with inactivated parapoxvirus ovis a had significantly greater phagocytosis and oxidative burst than foals treated with inactivated Propionibacterium acnes. b There was no significant effect of time on phagocytosis or oxidative burst in control foals and in foals treated with inactivated Propionibacterium acnes b. Treatment with inactivated Propionibacterium acnes b resulted in significantly less intracellular proliferation of *R. equi* within monocyte-derived and BAL macrophages on day 19 compared with control foals but not compared with foals treated with inactivated parapoxvirus ovis.

Footnotes

aZylexis, Pfizer Animal Health, New York, NY 10017.
bEqStim, Immunovet, Inc., Tampa, FL 33610.