

FOCUS Pasteurellosis Prevention

Regulations about antibiotic use in rabbit production are expected to tighten, thus there is urgent need for infection-control alternatives. *Pasteurella multocida*, a serious bacterial infection in rabbits, causes significant economic losses. Improved husbandry and culling of affected animals reduces morbidity and mortality but at considerable cost. Vaccines do not provide complete protection. β -glucans are cell wall constituents of bacteria, fungi, and plants that act as biological-response modifiers, and positively influence the immunological response in mammalian cells. This study evaluated the effects of a β -glucan dietary supplement on *P. multocida* infection in rabbits.

Clinically healthy rabbits ($n = 35$) were divided into 5 groups of 7, including 1 control group and 4 experimental groups (positive controls, enrofloxacin-treated [10 mg/kg], low-dose β -glucan [5 mg/kg], and high-dose β -glucan [50 mg/kg]). There were 3 physiological model groups inoculated intranasally (IN) and 4 supraphysiological groups inoculated both IN and intramuscularly (IM). Subjects were evaluated clinically and via necropsy. All infected rabbits developed clinical signs within 24 hours. IN-challenged (positive) controls had minor changes found on necropsy; β -glucan-treated animals had healthy

tissues, similar to negative controls. In the supraphysiologically challenged group, β -glucan treatment did not mitigate necropsy findings or reduce death rate but postponed death by several days, both at low and high doses. This delay may allow antibiotic intervention in field conditions, as the study found enrofloxacin treatment effective. Overall, results indicate that oral β -glucan may prevent naturally acquired pasteurellosis in rabbits.

Commentary

This report suggests the possibility of using oral β -glucan, a non-specific stimulant of the innate immune systems, to prevent *P. multocida* infection in rabbits. The importance of *P. multocida* in the lab, rabbit meat, or pet trade cannot be overstated. Although many diseases have been eradicated from lab rabbits, *P. multocida* is still a scourge because of its communicability, carrier state, and ability to cause fatal disease arising in numerous organs. In the current climate of antibiotic resistance, the use of such easily administered alternatives will only increase in importance.—Bruce Williams, DVM, DACVP

Source

Palócz O, Gál J, Clayton P, et al. Alternative treatment of serious and mild *Pasteurella multocida* infection in New Zealand white rabbits. *BMC VET RES*. 2014;10:276.

Understanding Problem Behaviors

Dog behavior is often a factor when the human–dog relationship breaks down. Owners may consider normal or adaptive behaviors problematic. Breed, age, sex, reproductive status, diet, source, and age of acquisition, as well as owner knowledge and experience, have been studied as potential contributing factors. This study, surveying owners of 371 dogs ≥ 1 year of age, focused on owner perceptions of “undesirable” (eg, unpleasant) vs “problematic” (eg, difficult to solve) behaviors and how they related to the factors listed above. Most owners (65%) reported only undesirable behaviors, while 32% reported undesirable and problematic behaviors they were interested in changing; 80% of these owners sought behavioral modification. Behaviors perceived as problematic (eg, dog aggression, food possessiveness, fearfulness on walks, excessive barking, aversion and aggression to strangers, toy possessiveness, house soiling, owner aggression, attention seeking, noise reactivity) were generally fear- and anxiety-related. The strongest link to an owner’s wish to change a dog’s behavior was aggression. Dog factors affecting behavior, either alone or in combination, included size, age, age at acquisition, and breed. In owners, gender differences, divorce status, and the

perception of the dog as a child appeared to play a role in owner impression of problematic behaviors. This study confirmed that canine behavioral evaluations should focus on owner and dog factors, as well as an owner’s perception of problems, to improve compliance with recommendations.

Commentary

Understanding the demographics, both canine and human, that affect the probability of various behavior problems, and the likelihood of owners wishing to address dogs’ behavior, are important. This study gives useful demographic information and supports the authors’ previous research showing that separating a puppy from its litter early during the socialization period (ie, prior to 8 weeks of age) can set the stage for development of behavior problems in adults.—Sharon Crowell-Davis, DVM, PhD, DACVB

Source

Pirrone F, Pierantoni L, Mazzola SM, Vigo D, Albertini M. Owner and animal factors predict the incidence of, and owner reaction towards, problematic behaviors in companion dogs. *J Vet Behav*. 2015;10(4):295-301.

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