

PHARMACOKINETICS OF LUFENURON SIX MONTH INJECTABLE SUSPENSION IN CATS

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INTRODUCTION

Lufenuron is an insect development inhibitor interfering with chitin synthesis. Lufenuron has been developed by Novartis Animal Health Inc. as a systemic product, PROGRAM®, for the control and prevention of flea infestations in cats and dogs. Pharmacokinetics of two experimental injectable formulations of lufenuron (formulation A and B) with an intended period of efficacy of six months were studied in cats.

MATERIALS & METHODS

Six male and four female cats of the European breed were assigned to two treatment groups of four cats each given a nominal dose of 10 mg/kg and a control group with 2 cats receiving a placebo formulation. Cats were continuously infested with reared fleas (*Ctenocephalides felis*). Injection sites were checked for adverse local reactions.

RESULTS

Pharmacokinetic parameters (group mean with standard deviations) for formulation B (data of formulation A are closely related to B):

Time of and maximum blood concentration; $T_{max} = 49$ (39) days,
 $C_{max} = 182$ (19) ng/mL; mean residence time, MRT = 166 (24) days;
area under the curve; $AUC_{0-90} = 32687$ (4038) (ng/mL.days); area under the curve extrapolated; $AUC_{0-\infty} = 35958$ (2749) (ng/mL.days) and the elimination half life time; $t_{1/2} = 77$ (26) days.

The final commercial formulation is based on the experimental formulation B. Efficacy and tolerability. Both experimental formulations produced a total inhibition of the flea development cycle starting at 4 to 15 days after administration and lasting for 7 months and were well tolerated.

CONCLUSION

The study confirmed that both experimental formulations of the lufenuron injectable suspension produce lufenuron blood profiles to achieve total control of flea infestations for at least six months.

Efficacy and safety of a imidacloprid spot-on formulation for treatment of flea infestations in domestic rabbits.

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The flea is the most common blood-sucking ectoparasite reported from a wide range of different mammalian hosts. In the study reported here, thirty-two (32) cases of natural flea infestations in domestic rabbits were examined. The number of fleas confirmed on individual rabbits were less than 10 specimens in most cases or less than 20 specimens even in severely infested rabbits. Two flea specimens were collected at random from each rabbit and identified by morphological examination as *Ctenocephalides canis* for 4 specimens from 2 animals and as *C. felis* for 60 specimens from 30 animals. A spot-on formulation of imidacloprid (Advantage® 40 for cats, Bayer AG, Germany) was administered to 30 of the 32 rabbits, 2 cases with *C. canis* and 28 cases with *C. felis*. The applied dosage was 10 mg active ingredient per kg body weight. This single spot-on treatment was sufficient to completely eliminate the fleas from all the treated rabbits. At day 1 post treatment (dpi) fleas were completely eliminated from 27 of the 30 treated rabbits. Fleas on the remaining three rabbits were less than 5 in all cases. At 2 dpi, no fleas were counted on any of the 30 rabbits treated with imidacloprid.

In the second part of the study the safety evaluation of the formulation was carried out on uninfested laboratory rabbits. There were 4 groups of 6 animals each in the safety evaluation. The animals used for the study were rabbits of the Japanese white breed, with even numbers of females and males. The rabbits were two months old weighing between 1.2 - 1.5 kg. The applied dosage was 10 mg a.i./kg once (group 1), 100 mg a.i./kg b.w. once (group 2) and 10 mg a.i./kg for 3 successive days (group 3). The fourth group served as untreated control. The animals were examined for up to 10 days after treatment. The general clinical health, with special emphasis on skin and hair at the application site, as well as laboratory examinations of blood chemistry, hematology and urinary analyses were recorded. None of the animals in the treated groups showed any signs of adverse effects after spot-on application of imidacloprid.

This study clearly indicated that imidacloprid (Advantage® spot-on) is efficacious and safe to treat flea infestations in rabbits.

SELECTED IMMUNOLOGICAL PARAMETERS IN BITCHES WITH GLANDULAR CYSTIC HYPERPLASIA-PYOMETRA COMPLEX

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INTRODUCTION

Glandular cystic hyperplasia-pyometra complex (GCH-PC) is common reproductive system disorder in bitches. Typical for the majority of patients are conspicuous advanced condition and severe clinical manifestation of the disease. Patients require resolute stabilisation of the internal environment by broad spectrum antibiotics and aggressive fluid therapy. The success of our study was to evaluate selected immunological parameters in bitches suffering from GCH-PC.

MATERIAL AND METHODS

Total leukocyte count, differential leukocyte count, phagocytic activity of neutrophils, blastogenic response of lymphocytes and total serum Ig level were evaluated in 6 bitches (average age 7 years, German Shepherds) with diagnosis GCH-PC and compared with those in healthy dogs. Diagnosis was made on the basis of clinical examination, ultrasonography and microbiological test (*Staphylococcus* sp., *Streptococcus* sp., haemolytic *E. coli*). Blood samples were taken from v. cephalica before ovariohysterectomy, one and two weeks after ovariohysterectomy, respectively.

RESULTS GCH-PC was accompanied at the beginning with high total leukocyte count, neutrophilia and lymphopenia, related to the severity of the disease. These hematological findings after ovariohysterectomy gradually returned to normal values.

Phagocytic activity of neutrophils in affected bitches was lower than the value in healthy bitches and has improved during the therapy. Blastogenic response of lymphocytes was impaired in the majority of the bitches suffering from GCH-PC and even in the end of observation had not reached comparable values with those in healthy bitches. The level of total serum Ig had increased from the low initial value to value comparable with healthy dogs.

DISCUSSION The general health state of bitches suffering from GCH-PC included to our study was so impaired that require immediate surgery. Hematological and immunological findings contributed to this solution. High white blood cell count and neutrophilia reflect activation during the inflammatory process, while decreased phagocytosis and functional activity of lymphocytes show alteration of the immune system. The fact that after ovariohysterectomy all parameters except lymphocyte functional activity have improved, indicate direct relation of immunosuppression to the GCH-PC. The lymphocytic activity probably needs longer time to repair.

CONCLUSION Immunological and hematological analysis provide specific information on the severity of the inflammatory process and animal health status in the course of illness and recovery, and facilitates the choice of suitable therapy.

DILATED CARDIOMYOPATHY IN THE PRESA CANARIO DOG: (A STUDY OF 41 CASES)

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INTRODUCTION. Idiopathic, dilated cardiomyopathy (DCM) is condition of unknown etiology characterized by a progressive dilatation of one or both ventricles with severe impairment of systolic function in the absence of congenital, coronary arterial, hypertensive, vascular, pulmonary parenchymal, valvular, or other cardiovascular disorders.

MATERIAL & METHODS. Forty one Presa Canario dogs with clinical signs of congestive heart failure, were included in this study. These dogs were presented for evaluation with clinical signs of lethargy, exercise intolerance, cough, pendular abdomen, anorexia and emaciation. The patients were evaluated by physical examination, electrocardiography, echocardiography, radiology, and *Dirofilaria immitis* test and all were diagnosed of congestive heart failure due to primary dilated cardiomyopathy or idiopathic cardiomyopathy.

RESULTS. All dogs studied showed lethargy and fatigue. Common clinical signs observed were dyspnea, arrhythmia, cardiomegaly by radiology and dilated cardiac chambers and a shortening fraction less than 25% by echocardiography. Most of patient (92.7%) were males and the median age of presentation was 7.5 years old. Hematological abnormalities were uncommon. After conventional treatment applied to animals using diuretics, vasodilators and digitalis a clinical improvement was observed in 73% of the patients, with a survival time of 342 days from its diagnosis.

DISCUSSION. In this report of DCM in the Presa Canario, most clinical, radiographic, electrocardiographic, echocardiographic and analytical findings were similar to and consistent with previous reports of DCM in large and giant breed dogs. However some notable differences were identified.

CONCLUSION. This study of 41 Presa Canario in congestive heart failure caused by DCM showed a wide range in age at onset of the disease. Male sex predilection was observed. Cough, depression, pendular abdomen, anorexia and emaciation were most common presenting complaints. Common physical examination findings included dyspnea, weak femoral pulses, ascites, weight loss. Atrial fibrillation was the most common arrhythmia. Ventricular arrhythmia only appear in dogs with age over than 7.5 years old.

A STUDY OF BLOOD PARASITIC GASTROINTESTINAL

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INTRODUCTION: Gastrointestinal parasitic operations in order to gastrointestinal disorder, Examir for almost all patient with major

MATERIAL & METHODS: for this study these animals wt which included 10 dogs & group. Gastroscopy and colopcopy oper were collected daily for a period course, measurement of PCV, E were determined.

RESULTS: The results indic Fibrinogen increased until day 9 the groups.

DISCUSSION: According to th fixation of organs in ventricular re blood parameters.

CONCLUSION: A correlation i parameters and inflammatory prc parameters studied, determination: there was no differences between to be a reliable test for inflammati seems to be due to physiologi cortico steroids released during th

PLASMA PROGESTERONE, ESTRAI DURING ONE YEARS IN A LOCAL C

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INTRODUCTION: Knowledge of plasma during estrus cycle of female cats is an im pregnancy and pseudocyesis, cystic endon determination of follicle and luteal functio differences of various mammary tumors, a and Howland, 1991; Johnson et al., 1996). The purpose of this report is to examine th estradiol-17 B concentrations in various re heus.

CASE REPORT: A local 50 th days young Cat lived was arranged as a house environ given using industrial cat food (Carey and regularly from the cat once every five day) once every three days after 5 months. The plasmas were kept in deep freezers until a levels were determined using competitive) Ortho-Clinical Diagnostics GmbH, 1998). In pseudocyesis and pregnancy during examai that a progress over the basal value after th around 30 pg/ml on the 40 th day of pregn: hepatocyst which reached the first peak (peak on 40-45 th days. The lowest estradio in this period.

CONCLUSIONS: As a result, to fix certain hormonal changes in pregnancy periods to levels have to be checked with estradiol an

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