

An Innovative And Integrated Approach For The Treatment Of Deep Pyoderma In Dogs: Preliminary Report

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1,5 yo, Maremman hound, deep pyoderma of the rump



After 4 weeks of antibiotic and KBS



6 yo, Pittbull, 12-month-old injury



After 4 weeks of antibiotic and KBS



INTRODUCTION

Canine pyoderma is one of the most common diseases presenting complaints in small animal practice¹; since bacteria are often located in the centre of fibrotic or inflammatory foci associated with chronic disease and scarring², these lesions typically require long-term oral antibiotic therapy, are harder to eliminate and recurrence is frequent.^{3,4}

In light of emerging multidrug resistance and the associated potential restriction of veterinary antimicrobial drug use, it is critical to explore alternative treatments that can increase efficacy and reduce reliance on antibiotics.

The aim of this study was to evaluate the efficacy and safety of KLOX BioPhotonic System (KBS), which consists of a multi-LED light device and a topical photo-converter gel, in treating canine deep pyoderma and to assess the potential of KBS to reduce the time to clinical remission (CR) when administered in conjunction to systemic antibiotic therapy.

MATERIAL AND METHODS

The study was performed in one single clinical site; twenty seven dogs with clinical and cytological diagnosis of deep pyoderma that met all the inclusion and exclusion criteria requirements were enrolled in 4 groups, by random choice of the Principal investigator:

5 DOGS KBS twice a week	8 DOGS Oral Antibiotic*
5 DOGS Oral Antibiotic* + KBS once a week	9 DOGS Oral Antibiotic* + KBS twice a week

*cefadroxil (20 mg/kg, twice daily)

Skin biopsies were obtained before KBS treatment and after CR. Maximum duration of treatment period was 20 weeks for group Oral antibiotic alone.

The KBS treatment consisted of a two-millimeters layer of a photoconverter gel directly spread on the affected pyoderma area and illuminated with a LED lamp for two minutes at an approximately five-centimeter distance. After treatment, any residues of gel were gently cleaned with a dry gauze wetted in sterile saline solution.

PRELIMINARY RESULTS

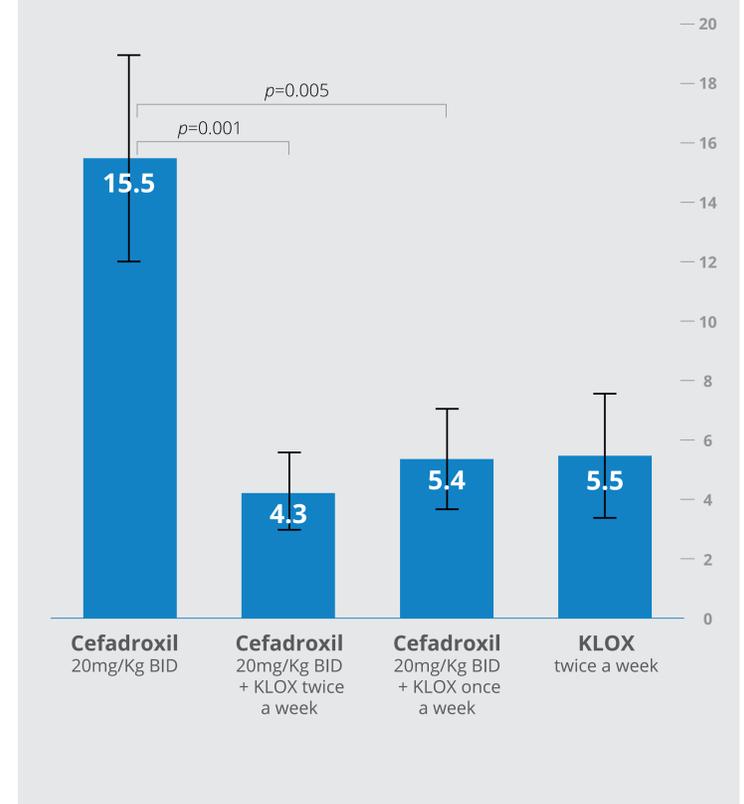
There were no adverse events detected by the clinician or reported by the dog's owner.

The combination treatment of cefadroxil and twice weekly KBS exhibited an excellent safety profile and achieved CR of signs in 4.3±1.3 weeks (mean±sd) in all dogs. The results for the other groups were 15.5±3.5 weeks for cefadroxil only group, 5.5±2.1 weeks for KBS only twice a week and 5.4±1.7 weeks for combination of cefadroxil and once weekly KBS.

There is statistical significant difference between the cefadroxil only group and combination groups of cefadroxil and twice weekly KBS ($p=0.001$) and once weekly KBS ($p=0.005$).

Skin biopsies revealed a significant up-regulation of mRNA of different factors among which epidermal growth factor, neural growth factor, platelet-derived growth factor and matrix metalloproteinase 9 ($p<0.01$) compared to the expression in dogs treated solely with cefadroxil.

TIME (IN WEEKS) TO CLINICAL RESOLUTION - DEEP PYODERMA



PRELIMINARY DISCUSSION AND CONCLUSIONS

The rapid emergence of antimicrobial resistance makes the prolonged use of antibiotics difficult to justify; the choice of agents should be based on bacterial culture and antimicrobial sensitivity testing and prescribed only if there are no other options.³

KBS has demonstrated to have an excellent safety profile and shows potential to significantly accelerate time to clinical resolution and reduce the duration of exposure to systemic antibiotics for deep pyoderma treatment. The best results were achieved with twice weekly application of KBS application in combination with Cefadroxil.

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