Oral antioxidant supplementation with OcuGLO™ prevents cone death in dogs with progressive rod cone degeneration – preliminary findings

David Williams¹, Terri McCalla², Carmen Colitz³

¹ Department of Veterinary Medicine, University of Cambridge, Cambridge, UK

² Animal Eye Care, Bellingham, WA, USA

³ Animal Necessity, Jupiter, FL, USA

Dogs presenting with nyctalopia associated with progressive rod cone degeneration (prcd) progress to total blindness within 1–2 years. Cone death occurs through free radical-mediated photoreceptor destruction when insufficient rods remain to use available oxygen. Here we show that oral antioxidant supplementation with plant antioxidants in OcuGLO™ prevents prcd-affected dogs from developing day blindness.

Five prcd-affected Labrador retrievers (cases 1–5) and three miniature poodles (cases 6–8) with nyctalopia but functional day vision were given oral antioxidant supplementation using OcuGLO™ (see Table 1) daily. Scotopic and photopic vision were assessed with a maze test in dark and light conditions respectively. The time from diagnosis of nyctalopia to development of day blindness, if it occurred, or the end of the study period if vision was retained, was recorded. Ethical constraints did not allow comparison with a placebo control group of dogs, so historical evidence on previous breed-matched cases with prcd was used.

■ Vitamin C	5 mg/kg
■ Vitamin E	2.5 i.u/kg
■ Alpha-lipoic acid	1.5 mg/kg
■ Ubiquinone	1.5 mg
■ Lycopene	0.2 mg/kg
■ Green Tea Extract	2 mg/kg

Table 1: Antioxidant content of OcuGLO™ give per day to each dog.

The period of day vision retention after diagnosis of nyctalopia is shown in Table 2 showing time until total blindness ensued for historical control dogs and time from diagnosis to end of the study in dogs which did not develop day blindness. The mean retention of day vision was 36.0 ± 27.1 months for supplemented dogs and 13.8 ± 1.9 months for control dogs, this significant at $p < 0.05$ using an unpaired T test. No anti-oxidant supplemented dogs developed day blindness but all control dogs became blind.

Case	1	2	3	4	5	6	7	8
Supplemented	18	18	16	16	25	71	84	40
Control	14	12	15	10	15	16	15	14

Table 2: Time in months with day vision retention in 8 supplemented & 8 control dogs

This study shows that prcd-affected Labrador retrievers and miniature poodles benefit substantially from antioxidant supplementation with OcuGLO™, retaining day vision while on the supplement. Further research is needed to extend the duration of this study but OcuGLO™ shows great promise in preventing complete blindness in these dogs.

Effect on ocular health of removing glandular tissue in cases of prolapsed canine nictitans glands: preliminary findings in ten dogs

Vicky McEvoy, David Williams

Department of Veterinary Medicine, University of Cambridge, Cambridge, UK

Thirty years ago removal of the glandular tissue in cases of prolapse of the canine nictitans gland (cng) was a recognised treatment method, being simple and effective without requiring general anaesthesia but merely local anaesthesia and sedation. An early publication suggested that the cng produces around one third of the ocular tear production and one paper has reported a proportion of dogs developing KCS several years after cng removal. Thus current advice is that all prolapsed cng should be replaced using the orbital rim

tie-down or the pocket technique. Two veterinary practices known to the current authors routinely remove prolapsed cng without apparent ill effects and thus we sought to measure tear production before and after surgery to assess the effect of the surgery on Schirmer tear test (STT) values and ocular surface health.

Ten dogs of varying breeds (five bulldogs, two bull terriers, one dachshund, one English cocker spaniel and one great Dane) with an average age at surgery of 1.01 ± 0.36 years were included in the study. Dogs were evaluated pre-surgery with full ophthalmic examination including a Schirmer tear test (STT) and were reassessed at four times post-surgically with ocular examination and STT evaluation repeated.

No dogs exhibited ocular abnormalities such as conjunctival hyperaemia, corneal ulceration or ocular discomfort at any time during the study. Table 1 (overleaf) shows mean STT results at the pre-surgical and each post-surgical examination with the proportion of tear production remaining and the number of animals with ocular surface changes.

The obvious limitation of this study is the short follow-up period for these dogs with a mean follow-up time of somewhat less than one year. Having said that the reduction of

Guest (guest)

IP: 3.81.55.215

On: Wed, 26 Apr 2023 09:33:56

Examination	pre-op	post-op 1	post-op 2	post-op 3	post-op 4
Time post surgery (weeks)	0	1.2±1.3	5.6±2.1	14.8±3.5	45.4±7.8
Mean±sd STT value (mm)	20.7±2.3	17.0±1.3	16.1±1.3	16.5±0.97	16.6±1.2
Range of STT values (mm)	18-22	15-19	14-18	15-18	15-19
Proportion of origin STT	-	0.82	0.78	0.80	0.81
Animals with ocular changes	-	0	0	0	0

Table 1.

around 20% in STT value seen immediately post-operatively does not appear to worsen over time either statistically or clinically significantly. In cases where anaesthetic risk might preclude surgical replacement of a prolapsed cng, this study suggests that it might be justifiable to remove the gland without causing damage to the ocular surface.