Oral presentations

Efficacy of 0.02% tacrolimus in dogs with keratoconjunctivitis sicca in which topical cyclosporine was ineffective: preliminary results

Thomas Kearns, David Williams

Queens Veterinary School Hospital, University of Cambridge, Cambridge, United Kingdom

OBJECTIVES

For thirty years topical cyclosporine has been used as a lacrimostimulant agent in cases of canine keratoconjunctivitis sicca or dry eye. In some cases this drug does not result in adequate increase in tear production either at 0.2% in Optimmune or in the 2% solution as originally reported. There is anecdotal evidence that tacrolimus, a similar drug to cyclosporine but with a more powerful immunomodulatory action, is more efficacious but until

now we have no objective evidence that this drug works where cyclosporine fails. Here we sought to use 0.02% tacrolimus (Bova Ltd, UK) in dogs with KCS where topical cyclosporine was ineffective.

METHODS

10 dogs with KCS where topical cyclosporine at 0.2% in Optimmune had failed to improve tear production were given 0.02% tacrolimus and their Schirmer tear tests (STT) were measured before treatment and over a one month period on tacrolimus. The data before and after tacrolimus treatment were compared with a Mann Whitney U test as the data were non-normally distributed when evaluated using the Shapiro-Wilk test.

RESULTS

The dogs were of varying breeds genders and ages but all eyes evaluated had STT below 5mm/min before treatment. The average STT before treatment was 2.8 ± 1.2 mm/min and at 1 month after treatment was 13.3 ± 1.6 mm/min this increase in tear production being significant at $p = 0.00018$.

STATEMENT (CONCLUSIONS)

These preliminary results suggest that topical ophthalmic tacrolimus at 0.02% is effective to stimulate tear production in dogs with KS where topical cyclosporine has not been efficacious

Intraocular pressure reduction in canine eyes with glaucoma treated by implanting a transcorneal aqueous drainage device

Brett Noden, David Williams

Queen's Veterinary School Hospital, Cambridge, United Kingdom

OBJECTIVES

Intraocular pressure (iop) reduction in glaucomatous canine eyes by use of a nanotubular transcorneal implant has previously been reported. Lowering of iop was documented in 9 dogs from a pre-surgical mean of 63.3 ± 17.9 mmHg to 13.7 ± 2.5 mmHg immediately post-operatively and 20.0 ± 5.3 mmHg after 6 weeks. Here we

report iop reduction after implantation in a further 12 eyes followed for up to one year.

METHODS

IOP was measured using a Tonovet rebound tonometer in 12 eyes of 10 dogs with primary glaucoma. A Brown nanotubular transcorneal drainage device was implanted under general anaesthetic and iop measured immediately after surgery and then at periods after surgery up to one year. Aqueous drainage onto the ocular surface was assessed using the Seidel test. Ocular comfort was assessed at each examination and through questioning owners about their dog's behaviour.

RESULTS

IOP values pre-surgically (mean $\pm$ standard deviation) were 63.8 ± 17.4 mmHg. Immediately after implantation iop dropped to 13.0 ± 2.1 mmHg. One day post-operatively iop was 15.3 ± 3.1 mmHg. One week later iop was 21.1 ± 13.0 mmHg but 4 eyes required an injection of tissue plasminogen activating factor to combat fibrin blockage of the device. At 2 months iop was 16.6 ± 4.3 mmHg. 6 months and one year later iop was 19.3 ± 5.4 mmHg and 18.0 ± 2.7 mmHg respectively. Four eyes

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required enucleation and one dog died for non-ophthalmic reasons. Maintaining an anti-inflammatory ocular environment was important with subconjunctival and topical steroid medication.

STATEMENT (CONCLUSIONS)

The results detailed here suggest that the Brown drainage device may be a valuable new treatment regime for canine glaucoma.

Variation in intraocular pressure in the normal canine eye between different dog breeds

David Williams, Lucy Gimson

Queen's Veterinary School Hospital, Cambridge, United Kingdom

OBJECTIVES

Intraocular pressure (IOP) is commonly measured in veterinary ophthalmology with normal IOP generally considered to be between 15 and 20mmHg. But does IOP differ across the normal eyes of different dog breeds? Here we sought to determine this by measuring the IOP in normal eyes of 1000 dogs of differing breeds.

METHODS

IOP was measured in both eyes of 1000 healthy dogs of various breeds with ophthalmoscopically normal eyes. The average IOP of the two eyes was evaluated. Data was

analysed for breeds in which IOP in over 20 dogs had been measured. The difference between mean IOP in dogs of different breeds was determined using the Mann-Whitney U test as the Shapiro-Wilk test showed data to be non-normally distributed. IOP differences between dogs of different genders and ages were evaluated using the Kruskal Wallis test.

RESULTS

IOP values between female entire, female neutered, male entire and male neutered dogs were 16.2 ± 2.9 , 1.4 ± 2.6 , 16.1 ± 2.8 and 16.2 ± 2.4 mmHg respectively, these not significantly different. A weak negative correlation was found between age and IOP with no significant difference across dogs of different ages from 4 weeks to 17.5 years. IOP in eyes of brachycephalic dogs was 17.6 ± 2.5 mmHg and in mesocephalic dogs 15.9 ± 2.5 mmHg, these significantly different at $p < 0.00001$. Pugs had the highest IOP at 19.1 ± 1.5 mmHg while Miniature Schnauzers had the lowest at 14.7 ± 2.7 mmHg.

STATEMENT (CONCLUSIONS)

Although all mean IOP values were within normal limits there is a significant difference in IOP between dogs of different breeds. Brachycephalic breeds had a significantly higher IOP than non-brachycephalic breeds.

Evaluation of blink rate in the normal dog

David Williams, Emma Denny

Queen's Veterinary School Hospital, Cambridge, United Kingdom

OBJECTIVES

Blinking is a key factor in maintenance of a healthy ocular surface and much research has been undertaken on blinking in humans, yet little is known about the normal blink rate in dogs. Spontaneous blink rate (SBR) was determined in dogs with ophthalmoscopically unremarkable eyes. SBR was compared between dogs of different breeds and genders.

METHODS

SBR was determined in dogs either by an observer sitting 5 metres away from the animal and counting blinks per minute over a 5 minute period or using a video camera

set to record the animal over 5 minutes and blinks counted on film later. As no difference in SBR between the two methods was determined the technique with observer present was used in the rest of the study. SBR was compared between brachycephalic and mesocephalic breeds and between male and female dogs.

RESULTS

The overall SBR in the normal dog was 11.5 ± 2.4 blinks/min, with a range from 4 to 26 blinks/min. SBR for 30 mesocephalic dogs was 9.9 ± 1.9 blinks/min. SBR for 30 brachycephalic dogs was 13.2 ± 2.8 blinks/min this significantly different using the students T test at $p = 0.001$. With all breeds considered together SBR for male dogs was 11.6 ± 1.7 blinks/min and SBR for females was 11.4 ± 2.9 blinks/min these not significantly different at $p = 0.1$.

STATEMENT (CONCLUSIONS)

These results document the SBR in the normal dog showing brachycephalic breeds to have a higher SBR than mesocephalic dogs. The importance of this difference has yet to be determined.