Oral presentations

Optimising topical ophthalmic drug delivery in the canine eye by reducing drop volume—preliminary investigations

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OBJECTIVES

The standard volume of a drop from an ophthalmic bottle is much larger than the volume of the canine tear lake. Previous studies regarding changes in heart rate and blood pressure associated with the use of topical phenylephrine show that trans-conjunctival absorption of topical drops can provoke systemic effects. Here we investigate whether drug delivery can be optimised by reducing drop volume.

METHODS

Pupils of greyhounds used for clinical teaching were dilated for fundoscopy either using 1% tropicamide from a standard minim vial or from one with a Gilson pipette tip attached to reduce the drop volume. Drop volume was measured by determining drop weight on a micro-balance. Degree of mydriasis was measured photographically and pupil size and time to full dilation were compared for the two delivery methods.

RESULTS

Volumes of drops from the two delivery devices were $31.4 \pm 15.0\mu\text{l}$ for the minim single dose dispenser vial and $10.0 \pm 3.4\mu\text{l}$ from the minim vial with attached pipette tip, these volumes being significantly different at $p < 0.0001$. Even though only one third of the volume was dispensed, the degree of maximum dilation (12.1 and 13.0 mm) and time to maximum dilation (60 minutes for both methods) was not significantly different.

STATEMENT (CONCLUSIONS)

The fact that a drop only one third the volume of one from the standard minim dispenser still gave the same mydriatic effect shows that methods to reduce drop volume should be used to minimise systemic absorption of topically administered drugs. Further work is required to investigate systemic effects of drugs at different drop volumes.

Difference in prevalence of age-related cataract in dogs in the UK and New Zealand: a consequence of differential ultraviolet light exposure?

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OBJECTIVES

Daylight exposure, and particularly ultraviolet (UV) irradiation, is accepted as an important factor in the genesis of

age-related cataract in humans. Here cataract prevalence in dogs was compared between the UK and New Zealand (NZ) two areas with substantially different levels of UV irradiance.

METHODS

Data already collected on cataract prevalence for 2000 dogs in the UK was compared with data gathered through ophthalmic examination in this study for 97 dogs in Kaitaia, NZ. The age at which 50% of the population had cataract (C50) was calculated for each population and compared with a Chi squared test.

RESULTS

The age profile of the dogs in both populations was not significantly different ($p = 0.98$) but cataracts occurred at a younger age in NZ dogs (C50 = 7.5 years) compared with those in the UK (C50 = 9.4) these values significantly different at $p = 0.0047$. All dogs in the UK population had lens opacity by the age of 13.5 while the comparable figure was 11.5 years in the NZ population.

STATEMENT (CONCLUSIONS)

Kaitaia is located at a latitude of 35.1° South and the UK at 55° North, with total annual hours of sunlight estimated at 2115 for Kaitaia and 1374 for the UK and at least twice

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