

GENERAL SCIENTIFIC SESSION SATURDAY

FLUOROMETRIC EVALUATION OF CROSS-LINKED VS LINEAR HYALURONIC ACID EYE LUBRICANTS (F Montiani-Ferreira, 2 SK Atzet, 1 AD Fankhauser, 1 EK Behan, 1 DJ Haeussler, 3) SentrX Animal Care; 1 Veterinary Medicine Department, Federal University of Paraná; 2 Animal Eye Institute; 3

Purpose. This study evaluated the residence time of linear versus cross-linked hyaluronic acid (XHA) on the canine ocular surface, using covalently labeled fluorescent compounds. This allows for evaluation of the actual presence of XHA, as opposed to the bulk medium (water). **Methods.** Linear HA and XHA were covalently modified using AlexaFluor-488 reactive moieties. Physical properties of the solutions were also evaluated for concentrations, viscosity and shear thinning profiles. Eye drops were applied to eyes of 18 dogs that were previously assessed and determined to have normal baseline ocular health (STT, slit lamp biomicroscopy, tonometry and fundoscopy). Using a blue light filter (450–490 nm), digital images were obtained, from instillation to 180 minutes. Images were analyzed assessing the percent of the total ocular area covered with green fluorescence at various time points. **Results.** All HA samples were successfully modified with approximately 5 mol% Alexa-Fluor. Viscosity varied from 0.4 to 32 Pa-s and all samples exhibited shear thinning. Linear HA quickly migrated to the tear meniscus and could be quantified up to 36 min. XHA exhibited a dual phase behavior: A wide surface coverage first, lasting up to 50 min, then accumulating in tear film meniscus and medial canthus in the second phase, remaining in contact with the ocular surface up to 180 min. **Conclusions.** XHA exhibited a broader ocular surface coverage and a significantly increased ocular surface contact time compared with linear HA. Not only could this indicate extended lubrication but, potentially, could be used as a topical sustained-release drug application method. Supported by SentrX Animal Care. E: SKA, ADF, EKB. C: FMF, DH

Saturday Presenting 3:45pm

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PRECORNEAL RETENTION TIME OF OCULAR LUBRICANTS IN DOGS (L Bedos, 1 RA Allbaugh, 1 MM Roy, 1 MA Kubai, 1 L Sebbag 1,2) Iowa State University College of Veterinary Medicine 1; Koret School of Veterinary Medicine, The Hebrew University of Jerusalem 2.

Purpose: To determine the precorneal retention time of five different artificial tears commonly used in dogs.
Methods: Six healthy Beagle dogs (n=12 eyes) were enrolled to study five artificial tears: Artificial Tears Solution®, I-Drop® Vet Plus, Optixcare® Eye Lube Plus, Systane® Ultra lubricant eye drops and Artificial Tears Ointment. Each lubricant was mixed with 10% sodium fluorescein to achieve 1% fluorescein formulations. Following topical administration (35 mg) in each eye, tear fluid was collected with capillary tubes at selected times (0, 1, 5, 10, 20, 30, 40, 50, 60, 90, 120, 180 min) and fluorescein concentrations were measured with a computerized scanning ocular fluorophotometer. **Results:** Tear fluorescence was significantly greater with Artificial Tears Ointment® compared with other lubricants from 1 to 20min post- administration. Median (range) precorneal retention times were significantly different among the 5 lubricants, ranging from 40 minutes (20-90 min) for Artificial Tears Ointment®, 35 min (20-90 min) for Systane® Ultra, 30 min (10-60 min) for I-Drop® Vet Plus, 25 min (10-60 min) for Optixcare® Eye Lube Plus, and 10 min (10-20 min) for Artificial Tears Solution®. Precorneal retention time was significantly lower for Artificial Tears Solution® compared with to the other 4 formulations. **Conclusion:** In dogs, ophthalmic ointment administration provided higher tear concentrations (first 20 min) and longer precorneal retention time compared with other topical lubricants. Precorneal retention time was also prolonged with formulations containing polyethylene glycol/propylene glycol (Systane® Ultra) and 0.25% hyaluronate (I-Drop® Vet Plus and Optixcare®) when compared with the regular artificial tears solution (1.4% polyvinyl alcohol). **None.**

Saturday Presenting 3:30pm