Abstracts of Scientific Presentations
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Platform Sessions

PS39 Clinical Complications in Watanabe Heritable Hyperlipidemic Rabbits on a High-cholesterol Diet
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The Watanabe heritable hyperlipidemic (WHHL) rabbits are the most commonly used genetically altered strain of rabbits used today for atherosclerosis research. Clinical complications such as lipid keratopathy, eruptive xanthomas and hepatic lipidosis have been previously described in these animals; however, there are currently no reports pertaining to other clinical findings when these rabbits are placed on a high-cholesterol diet. In the current study, Watanabe rabbits (n = 14) were placed on a diet containing 0.5% cholesterol. In addition to the high-cholesterol diet, 2 groups of these rabbits also received atherosclerotic plaque reducing drugs. Blood work, serial cholesterol, and triglyceride levels were monitored throughout the study. After 2 mos, the rabbits began to develop some unusual lesions. Complete ophthalmic examinations revealed that all rabbits had a significant lipid arcus and uveitis, and 2 out of the 14 had scleral and uveal eruptive xanthomas. Six rabbits developed complete bullous retinal detachments and glaucoma secondary to the uveitis. The retinal detachments and secondary glaucoma led to vision loss in this population. In addition, integumentary xanthomas and weight loss were seen clinically. At necropsy, affected animals had granulomatous inflammation in the pyloric region leading to partial gastric obstruction. Histological analysis of the ocular lesions revealed that the sub-retinal space was markedly expanded by lipid-filled macrophages and cholesterol clefts. Additional histopathological findings included severe diffuse hepatic lipidosis and lipogranulomatous inflammation of the meninges, ependymis, renal papilla and choroid. Although clinical complications are expected in these rabbits, especially when they are fed a high-cholesterol diet, the severity and extent of systemic involvement seen in these animals was unprecedented and warrants disclosure to the scientific community.

Poster Sessions- Abstracts of scientific papers

P9 Research Opossum (Monodelphis domestica) with Periorbital Swelling
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There are around 1,500 publications in the Pub Med database pertaining to the use of marsupials in experimental, biomedical oriented research. *Monodelphis domestica* are naturally found in arboreal habitats in South America. Here we report a case of a 3-y-old breeding female, part of an endocrinology study, that presented with right enophthalmia, moderate periorbital swelling, prolapsed and inflamed third eyelid, blepharospasm, and blepharitis with mild purulent discharge causing irritation and medial canthus alopecia. Triple antibiotic ophthalmic ointment (TAO) with hydrocortisone was initiated and systemic treatment with ibuprofen (15 mg/kg) provided for 7 d, after which no signs of inflammation remained. Two months later (January 11th) the same animal presented with ventral periorbital swelling, mildly prolapsed third eyelid, and buphthalmia in the right eye. Oral cavity examination under isoflurane anesthesia ruled out tooth root abscess. Systemic treatment with enrofloxacin (5 mg/kg), ibuprofen (5 mg/kg) and topical TAO was initiated. On re-evaluation 3 d later, the animal presented with severe buphthalmia, blepharoedema, third eyelid thickening, and hyperemia. Self-trauma to the periorbital area resulted in alopecia and hyperemia of the surrounding tissue. Based on the clinical presentation with poor prognosis and the age of the female, the investigator consented to euthanasia and postmortem evaluation. Blood was collected for CBC analysis. Grossly, the surface of the spleen appeared irregular, but otherwise within normal limits. The liver appeared muddy-brown in color with a smooth surface. CBC findings included neutrophilia without bands, accompanied by slight lymphopenia resulting in normal total white cell count. These results were supportive of transient stress most likely due to disease. H&E-stained sections showed severe unilateral suppurrative maxillary cellulitis with granulation tissue that displaced the right globe. The lesion contained both Gram-positive cocci (consistent with *Staphylococcus* or *Streptococcus* sp.) and filamentous bacteria (consistent with *Nocardia* or *Actinomyces* sp.).

**P129 Canine Model of Relatively Sustained Atrial Fibrillation Induced by Rapid Atrial Pacing and Phenylephrine**

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Atrial fibrillation is a common arrhythmia with important morbidity and mortality. Limitations in studying both mechanisms and therapy arise for paucity of models that possess a high yield, are not costly, and are sustained long enough to make the necessary observations. This model is based upon the thought that atrial fibrillation requires heterogeneity of repolarization, that distribution of vagal fibers is heterogeneous in the atria and that when stimulated by elevation of systemic arterial pressure, atrial fibrillation will persist. We postulated that rapid atrial pacing together with phenylephrine infusion will induce relatively sustained atrial fibrillation for at least 40 min in dogs. Dogs were anesthetized with morphine-chloralose because this permits nearly intact autonomic control. Systemic arterial pressure was elevated approximately 75 mmHg and mean heart rate was decreased approximately 9 beats/min with a constant infusion of phenylephrine, 2 μg/kg/min. The right atrium was paced for 20 min at 40 Hz. Atrial fibrillation was sustained in dogs receiving phenylephrine but terminated within seconds in normotensives. In dogs receiving phenylephrine infusion, 50% of the dogs maintained atrial fibrillation for > 40 min, and 50% returned quickly (<19 s) to sinus rhythm. In conclusion, atrial fibrillation may be
maintained for at least 40 min following cessation of rapid atrial pacing in dogs with hypertension produced by phenylephrine infusion.

P208 Assessment of QTc Formulas in Conscious Dogs with Pacing-induced Heart Failure
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Drugs given to people with naturally occurring diseases have been shown to be more toxic than when given to those without disease; therefore, it appears reasonable to search for potential toxicity in a model possessing a pathophysiological substrate known to sensitize humans to toxicity. Since a search for potential effects of drugs on ventricular repolarization is so critical, models possessing heart failure (HF) have become increasingly popular to investigate potential toxicity. Prolongation of heart rate (HR) corrected QT interval (QTc) is one of the surrogate markers for potential torsadogenicity of a test article. This study was conducted to determine which correction method best accounts for the effects of changes in the RR interval on the QT interval of conscious, sling-trained dog with HF. Bipolar, transthoracic ECGs were obtained from 18 conscious dogs at baseline and after 12 wk of rapid ventricular pacing. RR and QT intervals were measured and QTc were calculated using 3 common algorithms (Bazette, Fridericia, and Van de Water). After 12 wk of pacing dogs with HF confirmed by reduced LV shortening fraction had significantly slower HR \( (P < 0.01) \) and significantly longer QTc \( (P < 0.01) \) when compared to baseline. The following regression equations were related QTc to RR: QTc(V) = 239.4–2.68 RR, \( r^2 = 0.00 \) for the healthy dog; QTc(F) = 258.4–0.01 RR, \( r^2 = 0.01 \) for the dogs in HF. The Van de Water method demonstrated least dependency of QTc on RR interval in conscious, healthy dogs, but the Fridericia method was best for correcting dogs in HF. In conclusion, the rate-corrected QT formula of Fridericia appears to be useful as a biomarker for assessing effects of test articles on ventricular repolarization in dogs with HF.