Tufts Clinical Update by Dr. Isabel Jurk

Dr. Isabel Jurk leads our ophthalmology service, She a native of Karlsruhe, Germany. She graduated in 1995 from the University of Geissen, Germany after completing her clinical training at the University of Zurich, Switzerland. Following her dissertation research in cardiology at the North Carolina State University College of Veterinary Medicine (NCSU) (1995-1997), she completed a postdoctoral fellowship and a three year residency in comparative ophthalmology/MSpVM (Master of Specialized Veterinary Medicine) at NCSU (1997-2001).

Enrofloxacin Toxicity in Cats

Most veterinarians are aware of the toxic side effect of retinal degeneration that has been reported with enrofloxacin (Baytril, Bayer) in cats. Although the prevalence of this toxicity is unknown, many veterinary ophthalmologists in the U.S. have diagnosed this condition (*Gelatt KN, et al. Enrofloxacin-associated retinal degeneration in cats. Vet Ophthalm 2001;4:99-106).* I have seen cats suffering from severe retinal degeneration resulting in blindness. One cat, in particular had a long history of Baytril use – and I would like to provide you with some additional information on this topic.

Cases of acute and irreversible blindness in cats started to be reported about three or four years ago, after Bayer changed the originally recommended dose of 5 mg/kg/day up to 20 mg/kg/day. Whereas dogs don't seem to be affected, both the oral and injectable form of Baytril led to blindness (even after 1-2 doses) in some feline patients. The reaction appears to be dose-related and not idiosyncratic and the majority of cases have received dosages of 10-20 mg/kg/day. However, there are a fair number of cases that occurred at much lower dosages (one case at 4.6 mg/kg).

The pathogenesis of the condition is currently unknown but it most likely relates to a direct toxic effect on the retinal neurons. Potential central nervous toxicity (and the retina is part of the CNC!) prevented use of enrofloxacin in humans. Whereas the loss of vision is irreversible in most patients, some patients seem to recover some vision if therapy with Baytril is discontinued as soon as retinal degeneration is noted.

Bayer issued a "Dear Doctor" letter in 2000 in which they recommended to not exceed a dosage of 5 mg/kg/day. An additional toxicity study used 32 normal cats between six and eight months (eight cats per group). The cats received 0, 5, 20, and 50 mg/kg/day of enrofloxacin once daily (route unspecified) for 21 days. Retinal degeneration was noted in the 20 and 50 mg/kg/day groups (number of affected cats unspecified). The conclusion was made from this study that a dosage of 5 mg/kg/day is safe to use in cats and a second "Dear Doctor" letter was issued to this effect.

Please keep in mind when reviewing this data that healthy, young cats were used in small numbers to investigate an uncommon toxic side effect.

Please consider all this information when selecting appropriate antibiotic therapy for your feline patient. If you do choose to use Baytril at 5mg/kg/day, your clients should be made aware of this potential toxicity and instructed to monitor for mydriasis and vision loss, and to discontinue the drug immediately if this occurs.

As far as alternative antibiotics are concerned: Schering-Plough performed a toxicity study looking at the effect of 3% oral liquid orbifloxacin at doses of 0 (A), 15 (B), 45 (C), 75 (D) mg/kg/day (*Kay-Mugford PA, et al. Ocular effects of orally administered orbifloxacin in cats. Vet Ophthalm 2001;4:295).* They used 32 healthy, 6-month-old cats assigned to four treatment groups (four cats/sex/group) for at least 30 consecutive days. Cats in groups C and D (number not specified) suffered from retinal degeneration, also one cat in group B was affected clinically but no histopathological changes were noted. Schering-Plough concluded from the study that orbifloxacin at a dose up to 15 mg/kg/day is safe to use in cats. Again, one can draw their own conclusion given the number of cats per group the fact that normal and not diseased cats were studied, and the fact that one cat in group B had clinically evident retinal changes.

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