A MEDICAL CURE AND PREVENTION OF CANINE CATARACTS?

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INTRODUCTION

The veterinarian needs to be aware of the various products being marketed in stores and online that claim to cure or prevent cataracts. How the misinterpretation of gross examinations of the dogs' eyes by both clients and sometimes, veterinarians, led to positive anecdotal claims by manufacturers is easily explained. Anecdotal evidence has been defined, in science usage, as: "information that is not based on facts or careful study"; "non-scientific observations or studies". There are, however, other products, on the market or on the way to being on the market, show some real promise as observed by veterinary ophthalmologists.

NUTRACEUTICALS

For decades, preventatives or medical cures for cataracts have been sought for both man and animals. Vitamin supplements and various nutraceuticals (food or part of food that provides medical or health benefits including prevention and treatment of disease) have been marketed for their reported ability to dissolve, reverse or at least slow down the progression of cataracts. One category of nutraceuticals includes dietary supplements such as vitamin and minerals. Since these nutraceuticals are not classified as drugs, the FDA does not require proof of efficacy or of the companies' claim of success. Many of these claims are anecdotal and therefore not based on scientific facts or controlled studies published in refereed journals. Often the claims are made by clients with no scientific background to evaluate their observations and who frequently see what they are hoping to see. In other cases veterinarians have sometimes misinterpreted the results of tests such as pupillary light reflex, dazzle reflex in addition to the menace response. This has led to erroneous conclusions that these dogs had improved vision.

One early type of nutraceutical marketed contains zinc plus vitamin C. Another preparation contains succus cineraria maritima (Wysong Medical Corporation, Wyties Pharmacal Company and Similasin Cataract Care). Both are marketed to treat cataracts. Their efficacy has not been scientifically established.

In the last five to ten years a newer type of product has been marketed containing N-Acetyl-L-Carnosine or NAC. These formulations are again listed as nutraceuticals and are under no control for efficacy by the FDA. They claim to dissolve cataracts! A few examples of products marketed for animals include Bright Eyes, EquiVision, OcluVet, Pet Vision Pro, and Vision Clarity Eye Drops. There may be additional products containing NAC and there are also several human preparations available. Some
preparations such as OcluVet, also contain additional antioxidants. Claims of efficacy do not include substantiated evaluations by veterinary ophthalmologists. As with most nutraceuticals, claims are mainly anecdotal. The products themselves do no real harm to the dog. But with the erroneous claims and misplaced hopes, the client and veterinarian frequently miss or create a serious complication. There are several diseases involving the lens that can explain the apparent improvement in vision that some companies have claimed. The natural course of these conditions could show improvement without any drugs or nutraceutical. These diseases include hypermature cataracts with lens resorption, posterior luxation of the lens and the development of a Morgagnian cataract. In other cases while the owners have been applying drops hoping for a “miracle”, the normal progression of a diabetic cataract resulted in a painful, irreversible blind condition!

ANTIOXIDANTS

All of the previously mentioned products are also listed as antioxidants. Other nutraceuticals include grape seed extract, lycopene, vitamin E, or green tea extract which have been demonstrated to have potent antioxidant activity.

Oxidative stress has been shown in both animal models as well as in vitro lens studies to lead to cataract formation along with other degenerative ocular diseases. Ultraviolet irradiation and aging are two of the most common oxidative stressors involving the lens in humans and most likely in dogs. Antioxidants have long been heralded to slow down the progression of cataracts in man. If antioxidants are beneficial in man, why not in the canine? An additional difficulty in treating the canine is establishing the route of administration (oral versus topical) and the effective dosage and chemical form of the nutraceutical. It must be readily adsorbed when given orally, and reach an effective concentration in the lens.

HOPE FOR THE FUTURE

There is some hope on the horizon. A nutraceutical already on the market and a drug in the final stages of FDA trials, look promising. One recent addition to the market comes with scientific studies to back it up. Ocu-GLOR™, manufactured by Animal Health Quest and distributed by Animal Necessity. This product was developed by veterinary ophthalmologists and contains 12 natural antioxidants combined in a capsule form. Again, many claims are anecdotal by clients. In this case, however, the basis for the efficacy of the individual components is well documented in scientific and refereed journals. They do not claim the 'miracles' some other products claim but this product is promoted to possibly slow the progression of degenerative eye disease including cataracts. OcuGLO™ (www.ocuglo.com) is now recommended by many veterinary ophthalmologists.
A topical antioxidant formulation called Optixcare EH is currently under development and will be marketed by Aventix Animal Health. In an experimental animal model the damaging effect of ultraviolet light on the lens was reduced by the topical application of Optixcare EH. Similarly, these treatments were able to delay the progression of cataracts induced by diabetes. This nutraceutical would be an aid in delaying the onset of cataracts in dogs.

ALDOSE REDUCTASE INHIBITORS AND DIABETIC CATARACTS

A totally new product, a drug, unrelated to any previous product, is currently being developed to prevent progression of diabetic cataracts when these cataracts are recognized early. It has been reported that 41% of the diabetic dogs develop cataracts within the first 100 days and 75% within one year. Many of these dogs go on to develop painful sequelae such as glaucoma and anterior uveitis. Diabetic cataracts result from the accumulation of sorbitol in the lens. An enzyme, aldose reductase, reduces glucose, which freely enters the lens in high levels in diabetics, to sorbitol. The sorbitol then has an osmotic effect, resulting in imbibition of fluid leading to cataract formation. An aldose reductase inhibitor would prevent the high levels of sorbitol and thus, cataract formation. Kinostat™ is a topically applied aldose reductase inhibitor. In an initial 12 month study, 7 of 12 placebo dogs developed mature cataracts, while only 4 of the 28 dogs receiving Kinostat™ developed mature cataracts. Although not yet available, this drug shows great promise in preventing diabetic cataracts and their complications but only when started prior to or in early cases of cataract formation. The drug is undergoing additional trials and evaluations before seeking FDA approval.