OCULAR NUTRITION SOCIETY

Focusing On Nutrition Education

Nutrition for Glaucoma: An Executive Summary

Glaucoma is a very complex issue involving the standard association with increased intraocular pressure and subsequent loss of nerve fiber function. However, there are multiple issues relating glaucoma to a number of systemic concerns. Family history is the most associative issue when discussing glaucoma implying genetic relationships. Having said that there is a proposed relationship of the genetics of glaucoma to the ability of the body to properly absorb, transport and metabolize any nutritional product into the system.

Having said that, there is much more to this discussion than the one-armed approach of nutritional supplementation to overcome genetics. One pill cannot overcome a lifetime of abuse to the body. Topics associated with the evolution of the variations of glaucoma include, but are not limited to:

- Intraocular pressure*
- Farsightedness
- Nearsightedness
- Excessive caffeine Intake*
- Playing High Wind Instruments*
- Diabetes*
- Age
- Gender
- Trauma
- Vascular Disease/Vascular Perfusion*
- Hyper and Hypotension*
- Smoking*
- Obesity*
- Family History
- Dementia
- Erectile Dysfunction*
- Status of the Immune System*
- History of Ocular Surgery
- Pigmentary Dispersion
- Pseudoexfoliation
- Ethnicity
- Sleep Apnea*
- Low Intracranial Pressure*
- Hormonal Levels*
- Hyperhomocysteinemia*
- Oral, Topical, Inhaled Steroids*

Each of the starred topics has behavioral modification implications. Smoking and obesity are the most obvious relationships to disease while others are more tangential. That being said, strangely enough there has never been a definable associative risk between glaucoma and smoking. This discussion will address how behavior modification and nutritional supplements relate to the controlled progression and outcome of glaucoma.

Treatment with the majority of readily obtainable nutrients involves basic diet modification or supplementation as well as exercise and general modification of behavior including cessation of smoking and minimizing the use of alcohol. The thrust of the message in this discussion is that synergism is key rather than an isolated mono-therapy approach in the management of most chronic, neurodegenerative, and inflammatory disorders. Modulation (balance) is the critical watchword in the approach to the management of health in most individuals, while minimizing risk. Radical behavior or unbalanced therapy can and will create far more harm than good. Exercise potentiates effects and combined therapies represent the theme of recent discoveries. Remember that exercise is the basis for the mobility of the components of the immune system. The immune system components circulate by the creation of muscular activity. A recent study points out that despite eating a diet rich in omega-3 fatty acids, Alaskan Eskimos are developing subclinical atherosclerosis at an early age, likely due in large part to heavy smoking. Regular exercise and consuming long-chain Omega-3 fatty acids (FAs) from fish or fish oil can independently improve cardiovascular and metabolic health, but combining these lifestyle modifications may be more effective than either treatment alone.

There is neither a magic pill nor a magic nutraceutical, but rather a mental set and lifestyle that set the tone for maximizing health. While we should expect everyone to modulate their behavior to maximize their health, it just will not happen so we must arm ourselves to become personal health advisors to our patients.

Patients are practicing non-pharmaceutical management of diseases and disorders and the eye care practitioners need to tune into the program and manage the issues accordingly. The patients are begging for alternatives to expensive medications that virtually always have untoward side effects. Additionally, there is strong support in the medical literature regarding diet and nutritional support in the management of glaucoma. Much of the supporting documentation comes from literature considered outside the realm of eyecare, in the areas of vascular and neurological literature. The manipulation of this aspect of therapy may be particularly applicable to Normal Tension Glaucoma (NTG) with the thought that the cause is actually reported to be vaso-regulative with neurodegenerative issues. A number of studies support a look outside the paradigm of the current management of glaucoma.

Based on an exhaustive search of the medical literature, the possible positive actions of behavior modification, proper nutrition and exercise in minimizing the risk for the development or progression of ganglion cell and nerve fiber damage in glaucoma include:

- *Minimizing inflammation*
- *Normalizing ocular collagen and protecting ocular tissue against the neurotoxicity of glutamate.*
- *Address nutrients that exert specific influences on glycosaminoglycans (GAGs)*
- *Increasing ocular antioxidant defenses and scavenging harmful free radical molecules.*
- *Increasing the ocular level of glutathione to improve outflow and minimize antioxidant activity*
- *Preventing inappropriate release and actions of nitric oxide (NO) and vasoconstrictors from vascular endothelium.*
- *Improving ocular blood flow*
- *Minimizing inflammation and modulating the immune system*
- *Protecting the mitochondria before the process of apoptosis is unstoppable*
- *Control excessive glutamate*
- *Consider the genetics related to the problem. New data indicate that there are genetic influences on the ability to assimilate and utilize key nutritional components.*

The primary activity of non-pharmaceutical and traditional medical systems is in modulating the immune system, providing neuro-protection and improving cardiovascular function through action on the mitochondria, the bioenergy center of the cells. That being said, *no supplement is of value without a proper diet and exercise to enhance the effect.* Studies keep accumulating substantiating the importance of exercise on a regular basis. One of the latest studies points to the fact that increased fitness is associated with 50% to 70% reductions in all-cause mortality. Exercise trumps all issues in reducing inflammation and increasing blood flow.

BEHAVIOR MODIFICATION AND SUPPLEMENTS MODULATE INFLAMMATION

- Employ an Anti-Inflammatory Diet
- Stop smoking
- Lose Weight
- Exercise
- Balance Omega-6 Intake With Omega-3 Supplementation
- Check Vitamin D Levels and Consider Supplementation
- Consider the Benefits of a High Quality Vitamin Mineral Supplement
- Consider Curcumin Supplementation and Other Immune System

The mission of the Ocular Nutrition Society is to promote excellence in the care of patients through nutritional support for eye diseases and disorders through professional education and scientific investigation. Go to: www.ocularnutritionsociety.org for more information.