The Burnham Review

Macular Degeneration and Retinal Dysfunctions

Consider Manual Therapy and Complementary and Alternative Medicine for Optimal Health

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Retinal Dysfunction

This issue of The Burnham Review looks at retinal problems and what complementary medicine has to offer. Manual therapy approaches which improve blood flow to (carrying nutrients) and away (draining toxins) from the eyes and head can positively impact the symptoms of macular degeneration, detached retina and retinitis pigmentosa.

Improving liver function and detoxification can also help. There is a lot of medical research to support the use of essential fatty acids in vision problems in general and retinal dysfunctions specifically. Tumeric may also have a positive effect.

Reflex points from the fields of Acupuncture, Shiatsu, Integrative Manual Therapy and more can improve eye function and vision.

These complementary medicine approaches can have a significant effect for many people as according to Optometry.com "Age-related macular degeneration affects between 10 million and 15 million people in the United States alone and is the leading cause of blindness among the elderly. By the age of 75, as many as 30 percent of Americans have some symptoms of the condition. "[1]

For a wonderful set of pictures of what vision looks like for people with various eye disease go to the National Eye Institutes website. [2]

Macular Degeneration

Macular degeneration is a problem of the nervous system part of the eye or the macula, which is the central portion of the retina. An 82 year-old client put her recovery this way, "after 15 hours of Integrative Manual Therapy treatment, my ophthalmologist said my wet macular degeneration had not worsened in the previous year. I find that I can read and drive better. Colors seem brighter."

Sometimes with degenerative disorders the way to start is to stop or slow down the progression.

From the Canadian Journal of Ophthalmology comes this report on nutrition: "The Age-Related Eye Disease Study (AREDS) Research Group recently reported significant reduction in the progression of certain categories of age-related macular degeneration (AMD) with the use of high-dose antioxidant and zinc "

In a follow up study Candaian researcher surveyed 108 patients with macular degeneration (AMD) . "85 (79%) were taking dietary supplements, and 73 (68%) were taking at least one AREDS ingredient. The mean dosages of beta-carotene, vitamins C and E, and zinc were all below those recommended in the AREDS." Researchers concluded, "patients should be counseled to attempt to meet recommended dosages by using combinations of currently available supplements."[3] (Chang, 2003).

Retinitis Pigmentosa, Usher's and Complementary Medicine

Therapists treating the retina with manual therapy need to consider a number of factors, in order to get the best results, which can vary from

stopping the progressing of the retinal damage to a slight or complete return of the lost function.

There are a number of non-invasive ways to assess retinal damage. Having the individual describe the areas of black spots in the vision can give an indication of whether the damage is located centrally(more common with macular degeneration) or peripherally (as in retinitis pigmentosa). Assessment of the signs and symptoms can also give an indication of severity. These include nightblindness, dayblindness with photoaversion, nystagmus, poor vision in infants or unclear visual field defects.

Retinal function can be documented objectively by electroretinography (ERG). "Frequently a functional deficit of the retina without ophthalmoscopic changes can be assessed. These entities include achromatopsia, congenital stationary night blindness, early stages of retinitis pigmentosa (RP) or progressive cone dystrophy, as well as toxic retinal changes. Congenital amaurosis Leber (LCA), infantile RP, Usher's syndrome and retinal involvement in other neuropediatric or metabolic syndromes can be diagnosed or excluded by ERG recording early-on. Synoptic evaluation of the full-field ERG, pattern-ERG and VEP completes neuro-ophthalmological screening."[4] (Niemeyer, 1999).

There are also often small or large retinal detachments, which from an IMT perspective are Disruptions of Membrane (DOMs). Treatment with manual therapy plus nutritional supplementation ensuring the person has enough essential fatty acids, is a component of recovery of the detached retina. The person with a retinal detachment can expect to have the black area in their vision decrease as the membrane integrity increases and the blood flow to the eye and especially the retina is restored.

Essential fatty acids are especially important because "previous studies have shown that persons with retinitis pigmentosa and Usher's syndrome have lower blood levels of long-chain polyunsaturated fatty acids (PUFAs)."[5] (Maude, 1998).

Congenital malformation of the cochlear has also been associated with Usher's syndrome (US), a group of genetically distinct autosomal conditions, characterized by sensorineural hearing loss accompanied by a retinal dystrophy indistinguishable from retinitis pigmentosa (RP). There are 3 - 4 cases per 100.000 people.

By focusing on improving the space and mobility of the bones of the head, practitioners can improve the function of both the ears and the eyes. Sometimes it is bone bruises that are contributing to the problem. There are treated by restoring mobility of the bones, decreasing the compression on blood vessels in the head/neck and doing lymph drainage techniques to enhance detoxification.

A 1997 study found optic nerve edema associated with retinal problems and concluded, "edema is disc vessel leakage secondary to an inflammatory reaction caused by rapid photoreceptor and retinal pigment epithelium (RPE) degeneration."[6] (Villa, 1997). This emphasizes the importance of drainage techniques in all retinal dysfunctions.

Working with a Behavioral Optometrist (www.nora.cc/index.html) on lenses can also help. A 2000 study noted, "this article describes the experimental protocol used to instruct fifteen patients with peripheral visual field loss due to retinitis pigmentosa, choroideremia, or Usher's syndrome Type II how to effectively use bioptic amorphic lenses. The results of the study indicate that bioptic amorphic lenses, when combined with a comprehensive training program, can expand visual function in the areas of peripheral detection, recognition, scanning, tracking, visual memory, and mobility."[7] (Laderman, 2000).

In general with genetically based disorders, a part or all of the symptoms picture or how severe the manifestation of the disorder is can be attributable to immune system function. The better the immune system the fewer the signs and symptoms of the genetic disorder. While Manual Therapies don't typically treat the genes in genetic disorders, practitioners see good success with improvements of symptoms and better quality of life in people with genetic disorders through treatment of the immune system. This enables each cell to get the nutrition and drainage it needs to function optimally, even if optimally isn't 100 percent for that individual.

Hamel et a. described a number of genetic disorders which affect the retina. "Among 315 patients over an 8-year period, cases of retinitis pigmentosa (63.2%), Usher's syndrome (10.2%), Stargardt's disease (5.4%), choroideremia (3.2%), Leber's congenital amaurosis (3.2%), congenital stationary night blindness (2.9%), cone dystrophy (2.5%), dominant optic atrophy (1.9%), X-linked juvenile retinoschisis (1.6%), Best's disease (1.6%), and others (4.3%) were diagnosed. In retinitis pigmentosa,

inheritance could be determined in 54.2% of the cases including dominant autosomic (26.6%), recessive autosomic (22.6%), and X-linked cases (5%) while it could not be confirmed in 45.7% of the cases (simplex cases in the majority). For the 6 examined genes, mutations were found in 22 out of 182 propositus (12.1%). Analysis of phenotype-genotype correlations indicates that in retinitis pigmentosa, RDS is more frequently associated with macular involvement and retinal flecks, RHO with regional disease, and RPE65 with the great severity of the disease with some cases of Leber's congenital amaurosis. Identification of genes may help in diagnosis and in genetic counseling, especially in simplex cases with retinitis pigmentosa. In this latter condition, molecular diagnosis will be necessary to rationalize future treatments."[8] (Hamel, 2000).

Detoxification and Color Vision

Color vision is mostly from the central part of the retina, rich in cones. There are a number of toxins which can compromise color vision, the central macula of the retina, as well as cognitive function

In one study a sample of "82 painters and 38 other subjects were studied. Alcohol, drug, and smoking histories were obtained. Color vision was tested using the Lanthony D-15-d colour vision test. Cognitive impairment was measured using the Benton visual retention test, Trail making A, and Trail making B tests. Pre-morbid IQ was estimated using the National Adult Reading Test." Researchers concluded, "acquired color vision loss is associated with cognitive impairment in solvent exposed workers."[9] (Dick, 2004).

Mercury toxicity can also affect color vision. "The results of this study support the hypothesis that exposure to mercury vapor can induce sub-clinical color vision impairment. This effect was observed at an exposure level below the current biological limit for occupational exposure to mercury"[10] (Urban, 2003).

Alcohol is another risk factor in several retinal and vision problems. "In addition to alcohol-induced ocular anomalies among children with fetal alcohol syndrome, epidemiologic studies in the past two decades have demonstrated that chronic alcoholism is associated with a significantly increased risk of cataract, keratitis, color vision deficiencies and corneal arcus."[11] (Hiratsuka, 2001).

Pesticide exposure also correlates with retinal problems."To study the retinal changes in occupationally exposed pesticide workers, 79 subjects exposed to an organophosphate, fenthion, and 18 exposed to an organochlorine pesticide DDT, were subjected to a detailed study, including history taking, physical examination and ophthalmic evaluation....The macular lesions were characterized by perifoveal irregularity of pigmentation and areas of hypopigmentation of 1/8-1/3 disc diameter. Mean age of the subjects having macular involvement was 30.6 years and mean duration of exposure 7.9 years. The symptoms reported by them were diminution of vision (8), dislike for bright light, flash of light, black dots in front of the eyes (2 each) and visual blurring (1). Paracentral scotoma and constriction of peripheral field were present in three workers each. Fluorescein angiography suggested pigment epithelium defect. Other causes of macular involvement in these workers were excluded; a possible role of pesticides in the genesis of these macular changes is suggested."[12] (Misra, 1985)

Liver and Vision

Other studies have shown the effect on the eyes and vision of working on one area of the body far from the eyes.

This study, "to present two case histories in which a manipulative maneuver to the liver produced improvement in the patients presenting problems.

The first patient underwent a detached retina surgery that resulted in vertical diplopia of that eye. The second patient was a 37-year-old pregnant female (24 weeks gestation) experiencing hemorrhoidal pain.

Postural examination, manual muscle testing, and temporosphenoidal line examination were used to diagnose a problem with the pectoralis major muscle, which is associated in applied kinesiology with the liver. After manually manipulating the liver, the vertical diplopia in the first patient, and the hemorrhoidal pain in the second were both improved.

These case histories suggest that manual treatment of the liver may benefit cases with varying symptomatology. No firm conclusion can be reached from the results of a case study, although it does suggest that applied kinesiology chiropractic care may provide benefits for patients with liver disorders."[13] (Duffy, 2004).

Retinal Tears and Improved Prescription

" For the past 5 years I have been having my optometrist weakening my prescription in an effort to

strengthen my eyes. One of my overall Integrative Manual Therapy goals for years has been to not need my glasses (I have had them since the 6th grade and my eyes have progressively weakened over the years). For the last 3 years my eyes have been improving. I have improved 2.5 steps and my astigmatism has improved. Also, I used to have several pigment changes but in the last exam, she could only find one. I have two retinal tears that have both healed, which I had for several years without any changes. I attribute all changes to my IMT treatments, even though my eyes are rarely directly treated."

Turmeric (Curcumin)

Turmeric, an Indian curry spice has been used in the treatment of brain cells called astrocytes. It has been found to increase expression of the glutathione S-transferase, protect neurons exposed to oxidant stress and has other benefits as well. "Curcumin, an active ingredient of turmeric (Curcuma longa), inhibits proliferation and induces apoptosis in cancer cells, but the sequence of events leading to cell death is poorly defined." The spice's affect on diabetic cataracts as well as another visual problem, diabetic retinopathy has also been documented.

Reflex Points and Vision

Acupuncture and other reflex point based therapies have demonstrated improvements in people with retinal problems.

One study explains, "the object of this study is to answer the question: Is acupuncture of any use in ophthalmology? Despite an inability to explain in modern scientific terms the healing power of acupuncture, documentation of over 500 cases treated shows that this modality can be successful in the treatment of eye diseases, especially in cases of retinitis pigmentosa, high myopia, cataracts, surgical aphakia, controlled glaucoma and re-attached ablation retinae. ....Only symptoms are relieved and dimness of vision is a symptom which can be alleviated in many cases with periodic treatment."[14] (Wong, 1980).

Another study looked at vision in children. "We studied the efficacy of tongue and body acupuncture in affecting visual recovery in children with central and peripheral visual disorders. Twelve children (five boys, seven girls) (age range 18 months to 14.5 years) with visual disorder with static functional visual ability for at least 12 months were recruited for the study.. Tongue and body acupuncture consisted of 60 sessions, with 5 sessions per week. Four children showed clinical or functional improvement (33%). Of nine children with abnormal visual evoked potentials, five had improvement (56%). Of seven children who underwent PET, six had improvement in glucose metabolism in the visual cortex (86%). Seven parents (58%) reported improvement (three children had 75% improvement; four children had 25% improvement)."[15](Wong, 2006).

They concluded by saying, "As children with chronic visual impairment also showed some visual recovery, more studies should be done to assess the full potential of acupuncture as an adjunct to Western medicine in neuroplasticity."[16] (Wong, 2006).

In a study the same year, Tan noted, "Acupuncture combined with Chinese medicine can improve visual function of optic atrophy to a certain extent."[17] (Tan, 2006).

Blood Flow to the Brain and Eyes

This randomized, placebo-controlled, cross-over study looked at mean blood flow velocity (v(m)) of the ophthalmic (OA) and the middle cerebral (MCA) artery during traditional Chinese acupuncture (TCA), ear acupuncture (EA), Korean hand acupuncture (KHA) and placebo needling (PN) by simultaneous and continuous transcranial Doppler sonographic monitoring. Researchers "examined 20 healthy volunteers 19-45 years old. Vm in OA was significantly increased during needling vision-related acupoints of TCA and KHA, whereas nonsignificant alterations occurred in Vm of MCA. All subjects showed insignificant changes in mean arterial blood pressure. The study design does not allow to evaluate why and how the different acupuncture methods have an effect on the brain and eye, however it proves that acupuncture can provide scientifically measurable effects."[18] (Litscher, 2002).

Another study with functional magnetic resonance imaging (MRI) demonstrated that acupuncture stimulation of the vision-related acupoint, B1-67, activates the visual cortex of the human brain. Researchers concluded, "the results suggest the possibility of vision-related acupoint (B1-67) having an influence over the activity of the primary visual cortex."[19] (Lee, 2002).

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