Current Clinical Case Reports and Research You Should Incorporate into your Mode of Practice Now!

Dominick M. Maino, OD, MEd, FAAO, FCVD-A, Moderator

This fast-paced, dynamic, interactive course features the latest in clinical care as presented in the AOA's 2017 Poster Session in a course format. This timely, clinically relevant course presents the AOA's Best of 2016, as chosen by the content experts/peer reviewers of the AOA Poster Abstract Review Committee. Five of your colleagues present the latest in contact lenses, primary care, ocular disease, pediatrics, binocular vision, Public Health and more. This course provides the evidence based clinical practice tools necessary to maintain your high-quality mode of practice. During the 2016 course presentation an almost standing room only crowd was present!

Course Outline

This course is in a grand rounds format. The clinical case reports and research noted below are presented. Each will last approximately 15 minutes with the audience having an opportunity to ask questions afterwards.

Presentation #1

Concussive effects (mTBI) in veterans from the Iraq and Afghanistan conflict era in relation to other physical and psychological health problems.

Thomas G. Urosevich

Traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD) are the signature injuries of the Iraq and Afghanistan conflicts. With the extensive use of Improvised Explosive Devices (IED) the concussive effects from blast contribute to mild traumatic brain injuries (mTBI) in the veteran population. It is hypothesized that mTBI injuries can be associated with other physical and psychological health problems.

As part of a larger study involving veterans from many service eras, we surveyed 289 Veterans who had served during the Iraq and/or Afghanistan conflict era. Data for the study were collected using diagnostic telephone interviews of these veterans who were outpatients of the Geisinger Health System, a large, integrated health care organization in Pennsylvania, and one of largest integrated health services organizations in the United States involved in public health research. Outcome measures were assessed for those who had a history of service related concussion, compared to veterans who did not.

Of the 289 Veterans surveyed, 95.0% were male, 62.2% were 18-44 years old, 93.4% were white race, 76.8% were National Guard/Reserve veterans, and 29.1% reported a history of service related concussive effects (mTBI). Of these veterans with mTBI, 53.6% had high combat exposure and 60.7% had multiple warzone tours. Additionally,
50.0% had current TBI symptoms; 53.6% reported pain interfered in their life within the last month; 21.4% reported meeting criteria for PTSD in the past year; 54.8% had used psychological services in the last year; 53.6% reported any current disorder (PTSD, Depression, AUD, BSI-GSI) and 46.4% reported fair or poor current health.

A significant number of Veterans from the Iraq/Afghanistan era who had suffered concussive blast effects (mTBI) present with additional physical and psychological health problems in clinical practice. Based on multivariable logistic regression, high combat exposure is the best predictor of a history of mTBI (OR=4.5, p<0.001), followed by pain (OR=2.5, p=0.004) and having current mental health problems (OR=2.0, p=0.029). The primary eye care provider that encounters veterans as patients needs awareness of the health problems associated with mTBI. Additional research, including visual dysfunctions from mTBI and PTSD, is planned.

**Presentation #2**

**Prevalence, Incidence, Progression and Risk Factors for Myopia and High Myopia among Children in Central China: the Anyang Childhood Eye Study**

Shi-Ming Li

To determine the prevalence, incidence and progression of myopia and high myopia among Chinese children and evaluate the impacts of age, gender, parental myopia and time spent in near work and outdoor activities.

A total of 2119 (93.5%) grade 7 students were reexamined in the Anyang Childhood Eye Study (ACES) one year later. Cycloplegic autorefraction with cyclopentolate was performed. Myopia was defined as spherical equivalent (SE) refraction ≤ -0.50 diopters (D) and high myopia as ≤ -6.00 D. Progressive myopia was defined as progression of myopia of at least 0.50 D/y. Detailed questionnaires on parental myopia, near work and outdoor activities were administrated to the students and parents.

Of 1785 eligible children aged 10~15 (mean, 12.7) years, the prevalence, incidence and progression of myopia were 68.1% (95% CI, 65.9-70.2), 22.1% (95% CI, 18.7-25.5) and -0.49 D/y (95% CI, -0.51 to -0.46), and were 2.9% (95% CI, 2.1-3.7), 1.7% (95% CI, 1.1-2.3) and -0.37 D/y (95% CI, -0.61 to -0.13) for high myopia, respectively. Having either one or two myopic parents was associated with greater odds of prevalent myopia (OR=1.76, 95% CI, 1.35-2.30; OR=8.67, 95% CI, 3.76-19.99, both P<0.0001) and high myopia (OR=2.22, 95% CI, 1.17-4.20, P=0.01; OR=5.35, 95% CI, 2.47-11.60, P<0.0001), incident high myopia (OR=6.46, 95% CI, 2.55-16.40, P<0.0001), and progressive myopia (OR=1.43, 95% CI, 1.11-1.83, P=0.005). Children in the highest versus lowest tertile of time spent in outdoor activities had lower incidence of myopia (OR=0.55, 95% CI, 0.32-0.95, P=0.03) and less progressive myopia (OR=0.66, 95% CI, 0.51-0.86, P=0.002). Emmetropic (OR=0.39, 95% CI, 0.30-0.51) and hyperopic children (OR=0.16, 95% CI, 0.12-0.22) had less progressive myopia than myopic children (both P<0.001). Amount of near work was not associated with these rates of myopia.
Children in central China had higher prevalence and incidence of myopia and high myopia than children in other areas. More outdoor activities and less myopic parents were associated with lower incidence and less progressive myopia. The incidence of high myopia was associated with parental myopia, but not outdoor activities.

**Presentation #3**

Corneal edema secondary to Amantidine

Katrina Hrubiec

Amantadine is a medication that potentiates dopamine effects and is used to treat influenza A, Parkinson's disease, and certain movement disorders. It is also used off label to treat fatigue in MS patients. Ocular side effects include diffuse white sub-epithelial punctate opacities, SPK, and corneal edema.

A 61 year old male presented for his annual eye exam, reporting that his 2 year old glasses have become blurry at distance and near over the past month. The patient is a type 2 diabetic and has MS. On ocular examination, the patient's best corrected vision was 20/30 for the right eye and 20/70 for the left. The anterior segment was remarkable for 1+ Descemet’s folds and 1+ guttate of the right cornea, and 3+ central Descemet’s folds and 1+ guttate of the left cornea. All other findings were unremarkable. The central corneal thickness was measured at 637um, 837um for the right and left eye, respectively. After starting Pred Forte 1% every 4 hours for 4 days, his best corrected vision was 20/25 for the right and 20/50 for the left. The central corneal thickness decreased to 628um for the right and 811um for the left. The patient has no history of pre-existing endothelial disease, no history of surgery or trauma, and no evidence of infection. A review of active medications showed an association between amantadine use and corneal edema; this appeared to be a probable cause. With approval from the patient’s doctor, he discontinued Amantadine for 1 month, decreased the Pred Forte to 4 times a day, and return in 2 weeks. At the follow up visit, his best corrected vision and central corneal thickness continued to improve. Two weeks later, his best corrected vision was 20/20 for both eyes, central corneal thickness was 584um and 598um right and left, respectively. Mild central corneal haze in the left eye remained, with no folds or guttate present.

It is important to consider Amantadine use in the differential of bilateral corneal edema, given the dose-effect relationship. The most effective treatment for Amantadine induced corneal edema is discontinuation of the medication.

**Presentation #4**

Management Options for Central Serous Retinopathy

Roya Attar
Central serous retinopathy (CSR) is a chorioretinal disease that affects approximately ten men and two women per 100,000 people. It can be a potentially chronic and is characterized by the accumulation of subretinal fluid in the posterior pole. The main risk factors for CSR are systemic corticosteroid use, type A personality and pregnancy. The pathophysiology of CSR remains vague, although disorders in both the choroidal circulation and retinal pigment epithelium have been implicated. Most acute CSR cases may resolve spontaneously without treatment within months. A wide array of treatment strategies have been explored for chronic cases of CSR, including Photo Dynamic Therapy (PDT) following vetroporfin (Visudyne) administration, focal laser, intravitreal anti-VEGF, and systemic oral medication such as aldosterone antagonists. However, with the exception of an orphan drug designation for vetroporfin by the Food and Drug Administrator (FDA), to date there is no other approved treatment or international consensus concerning the optimal treatment protocol of CSR.

The authors present five cases of CSR in which different management options were utilized. Each case responded most optimally to a different form of management (Angiography guided focal laser, Angiography guided PDT, anti-VEGF, and oral medication) with one case representing spontaneous resolution. Each case was followed for a duration of one year or longer with either substantial improvement or complete resolution of subretinal fluid as a final outcome. In addition, these cases highlight the usefulness of imaging strategies such as optical coherence tomography, fundus autofluorescence, fluorescein angiography, and indocyanine green angiography in the treatment and management of CSR.

Management of patients with CSR, particularly in the absence of spontaneous resolution can be challenging. Optometrists must be abreast of potential risks, benefits and alternative of treatment options, particularly in chronic CSR with potential functional vision loss to potentially improve patient’s chances for rehabilitation.

**Presentation #5**

**Low Vision Rehabilitation and management of Choroideremia**

Justin Paul Kozloski

Choroideremia is a monogenic X-linked [1], progressive chorioretinal [2], rod-cone degeneration. Characteristic nyctalopia, tunnel vision with spared mid-peripheral regions, decreased contrast, and decreased visual acuity occur. Choroideremia occurs due to dysfunction in Rab escort protein-1 [3] that leads to the progressive degeneration in RPE, photoreceptors, and choroid [4]. Early identifying signs consist of pigmentary disturbance at the level of the retinal pigment epithelium.
RG, a 56-year-old Hispanic male with minimal past medical care and no other rehabilitative services or support reports to the Vision Rehabilitation Center at the San Antonio Lighthouse for the Blind and Vision Impaired for low vision services. Pertinent medical history is positive for major depressive disorder and posttraumatic stress disorder. Best-corrected visual acuity in the right eye was 20/200-2 and 20/400-1 in the left eye. Contrast sensitivity loss was profound in the right eye and severe in the left eye. Kinetic visual field testing displayed tunnel vision of less than ten degrees from the point of fixation in all meridians. Due to the degree of contrast sensitivity loss and decreased visual acuity, an electronic portable video magnifier was evaluated. Low vision rehabilitation resulted in successful fluent reading of goal size font. Further contrast difficulty was addressed with filters. Vocational and assistive services recommended, but declined at this time. In the recent past, RG was the victim of a robbery and subsequent head trauma that he suspected was due to being targeted for his vulnerability caused by his visual impairment. This incident resulted in a rejection of orientation and mobility white cane training.

Although contemporary investigations into gene therapy hold potential, there is no current effective treatment agreed upon by medical professionals for the pathology of choroideremia. In retinal disorders that result in visual impairment an appropriately timed low vision rehabilitation referral is critical in order to promote function, ensure job security, enhance quality of life, maintain independence, and to make proper interprofessional referrals. This case illustrates the psychological effects of losing vision without guidance of available services.