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2012 AAO Conference Educational Course Outline

BEYOND THE AMSLER GRID: CURRENT TRENDS IN VISION SELF-MONITORING APPROACHES FOR AGE-RELATED MACULAR DEGENERATION

This course will review of the importance of early detection of vision changes in age-related macular degeneration (AMD), include discussion of recently developed tools for home vision monitoring for AMD, and the role of the low vision provider in fostering patient education regarding self-referrals immediately following new onset vision loss.

Learning Objectives:

1. Describe the consequences of delayed diagnosis and treatment in new onset exudative AMD patients.
2. Understand the factors that influence AMD patients' self-referral speed and help-seeking behavior after sudden vision losses.
3. Gain familiarity with current tools for home vision monitoring in patients with AMD.

Outline

1. **Despite improvements in treatment options, wet AMD continues to be a significant cause of visual disability**
    a. Treatment options for exudative or neovascular (wet) AMD are expanding and provide some improvements in vision and/or protection against disease progression based on recent clinical trials (Rein 2009)
        i. MARINA, 2006: 90%+ patients maintained visual acuity after start of therapy
        ii. VIEW 1 & VIEW 2, 2011: 94% of patients maintained visual acuity after the start of therapy
    b. Even an improvement from current 94% to 99% efficacy in Anti-VEGF therapy would not eliminate vision loss because many patients present after significant loss of vision
    c. The incidence of dry to wet conversions of AMD is growing in the US
        i. Friedman et al. 2004; Bressler 2004; Bloch 2012: Incidence of AMD is increasing and will continue to rise as baby boomers age
        ii. Wong et al. 2008: 10-15% of dry AMD will convert to wet AMD
    d. Increasing societal and personal costs related to AMD
        i. AMD Alliance, 2010: estimated at $343 Billion each year in the US
        ii. Brody et al. 2001; Brown et al. 2003: AMD is associated with significant reduction in quality of life
        iii. Brennan et al. 2011: AMD reduces patients' independence and increases burden on caregivers & society

2. **Delay in the start of anti-VEGF treatment is a significant risk factor for worse vision outcomes**
    a. Rauch et al, 2012; Muether et al., 2012: Prognosis can be worse for vision if neovascular disease is not diagnosed and treated early
    b. Lim et al. 2012: Patients who wait for >21 weeks after the onset of symptoms to see a healthcare professional, develop increased, unnecessary vision loss
        i. In patients without vision improvements, their vision failed to improve from the outset of anti-VEGF treatments, with continued losses noted during the course of the treatment
        ii. Shorter delays (<7 weeks) from initial symptoms to time of first treatment were more likely to result in improved vision
    c. Reducing delay is therefore a critical health challenge
        i. Attebo et al., 1997: Well-informed patients with visual symptoms are more likely to seek treatment before irreversible vision loss occurs
    d. Bressler 2002: Neovascular lesions can be significant at the time of initial presentation, most likely due to delayed presentation

3. **Review of primary factors associated with delay in patient presentation following vision loss**
    a. Lack of awareness of a change in vision
        i. Patients unaware of a change in vision do not present until a routinely scheduled visit
        ii. Packer et al., 2009: 90% of patients interviewed who recently transitioned from dry to wet AMD noticed symptoms
        iii. Fletcher et al., 2011: In patients with scotoma, awareness of the scotoma is not related to scotoma size, density, visual acuity, patient age or duration since onset
    b. Lack of confidence and urgency related to changes in vision
        i. Packer et al., 2009: Multiple factors influenced the decision to schedule an appointment
            1. 1st was a lack of confidence in symptoms
            2. 2nd was a lack of urgency associated with symptoms
            3. Patients attributed symptoms to needing new glasses, cataracts or non-treatable progression of dry AMD
    c. Logistical & scheduling issues
        i. Packer et al., 2009: In the suburban population studied, delays were associated with access to Retina Specialists
            1. Travel limitations or finances did not cause significant delays
    d. Low vision specialists can potentially influence these factors of delay
        i. Improvements in home vision monitoring and AMD education tools may help to reduce delay

4. **An overview of home vision monitoring options for patients with AMD**
    a. Amsler Grid

i. The suboptimal performance of the Amsler grid for detecting scotomatous areas of vision loss in the macula has been reported by several investigators
ii. Zaidi, 2004: Amsler detected SRN in 29/100 patients, 11 of whom received laser treatment. Amsler was less effective in older patients.
iii. Schuchard, 1993: 77% of standard and 87% of threshold scotomas were not detected by Amsler
iv. Achard et al., 1995: Results of two successively administered Amsler tests were variable in size, shape and location, and therefore not comparable.

b. Preview Preferential Hyperacuity Perimeter (PHP)
i. Retina, 2011 - Sensitivity twice as high as Amsler
ii. Goldstein et al. 2005, Alster et al. 2005, Isaac et al. 2007: Sensitivity and specificity were superior to the Amsler grid
iii. Stur et al. 2010: Low false positive rate for detecting dry to wet AMD conversions
iv. Potential limitations: expensive, not portable, not easy to distribute

c. VisionTrack
i. Chhetri et al., 2010: Shape discrimination test on hand held device for patient self-test

d. 3D computer-automated threshold Amsler grid test (3D-CTAG)
i. Jivrajka et al., 2009: 24% of wet AMD had a scotoma detectable with the computer test but not with the Amsler grid
ii. Robison et al., 2011: 100% of wet AMD patients and 20% of dry AMD patients had a scotoma detectable with the computer test but not with the Amsler
iii. Potential limitations: these studies had small sample sizes and did not demonstrate value of the 3D-CTAG for detecting dry to wet AMD conversions or whether patients are capable of self-administering this test at home

e. VMS / KeepSight
i. Dagnelie et al., 2009: Pilot study in which AMD patients who had a preference tended to prefer the VMS grid vs. the Amsler
ii. Roser et al., 2012: randomized controlled trial of the VMS grid booklet vs. standard of care: 6 month self-monitoring behavior results
1. Statistically significant difference in the proportion of subjects who reported monitoring their vision at least weekly: 83% of the subjects with the VMS booklet vs. 46% of the control group
2. Subjects with the VMS booklet were significantly more likely to check their vision at least weekly
3. ~1/3 of the controls indicated that they had not checked their vision in the past 6 months, while none of the subjects with the VMS booklet reported that they did not check their vision in the same timeframe
4. Statistically significant difference in self-monitoring confidence between the groups

iii. Potential limitations: RCT is still ongoing and awaiting results regarding efficacy to help patients self-refer when true dry to wet AMD conversions occur

5. **Educating patients with AMD**
   a. Representative materials and web resources from Pharma, non-profits & KeepSight

6. **Q & A with audience**

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