What the Primary Care Optometrist Should Never Miss

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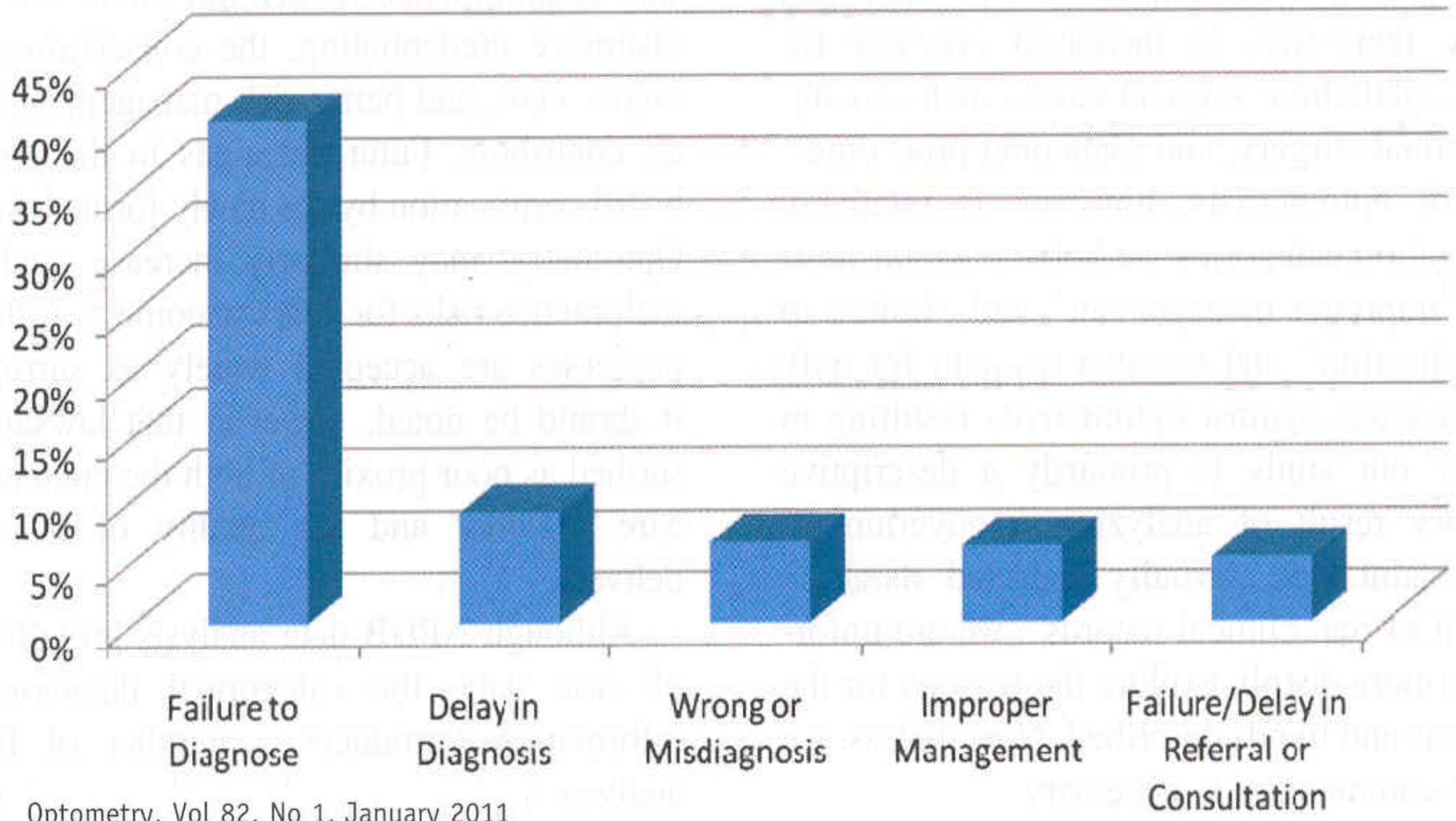
Financial Disclosure

Dr. Ron Melton is consultant to, on the speakers bureau of, on the advisory committee of, or involved in research for the following companies: ICARE and Valeant.

Causes of Optometric Medicolegal Misadventures



Optometry, Vol 82, No 1, January 2011

The General Ocular Health Evaluation

- History - History- History!
- Visual Acuity
- Pupillary Function
- Ocular alignment and EOM function
- Visual Field assessment
- Slit lamp evaluation
- IOP measurement
- Ophthalmoscopy

Additional Testing Options

- Radiologic imaging
- Systemic blood pressure
- Blood work
- Fluorescein angiogram
- Color vision assessment
- Amsler grid testing
- Carotid auscultation
- Optical coherence tomography
- Nerve fiber layer analysis

Regarding Pupillary Abnormalities

If there is:

- **No ptosis**
- **No EOM dysfunction**

Then it's nothing "bad" and a scan is not indicated

Consider: **Adies, pharmacologic causation, or "discovered" physiologic anisocoria as probabilities**

Oculomotor Nerve (3rd CN)

- **Isolated 3rd nerve palsy has 2 main causes:**
  - 3rd nerve palsy with pupillary involvement
    - Usually a PCA aneurysm (painful)
  - 3rd nerve palsy without pupillary involvement
    - Can be painful or painless
    - Usually associated with diabetic ischemia. Recovery is usually spontaneous in 8-12 weeks
- **Eye is usually down & out with marked ptosis in a complete 3rd nerve palsy**
- **When pupil is involved, it is usually mid-dilated**
- **Sudden onset of painful or painless palsy with spared pupil in the middle-aged/elderly patient with diabetes and/or hypertension is almost always caused by microvascular disease. Recovery is expected in 8-12 weeks.**

  Treatment: **occlude one eye or use a Fresnel prism**
- **Sudden onset of painful palsy with pupillary involvement at any age merits an emergency workup**

Anterior Ischemic Optic Neuropathy (AION)

- Sudden painless visual loss; fellow eye involved 40% of cases
- Age range: 50-70
- APD and decreased color vision
- Altitudinal VF defect (inferior loss most common)
- Swollen disc - diffuse or sectorial
- Flame hemorrhages at disc margin
- Check blood pressure
- Medical Consultation with STAT ESR, CRP, fasting blood glucose, CBC

Erythrocyte Sedimentation Rate

- **A non-specific measure of systemic inflammation**
- **Readily available, inexpensive test**
- **Requires venipuncture dependent blood specimen**
- **A foundational data piece in the work-up for giant cell arteritis**
- **Clinical thresholds relative to GCA**
  - Men: Age ÷ 2
  - Women: Age +10 ÷ 2
- **When Hx is compatible with GCA, do not hesitate to obtain a "Sed Rate"**

C - Reactive Protein

- More sensitive indicator for Giant Cell Arteritis than ESR
- Produced by liver in response to inflammation
- This protein can be accurately quantified
- It increases rapidly during disease states
- It decreases rapidly with effective therapy
- Uses serum rather than whole blood
- Lab test is quickly performed - inexpensive

Temporal (Giant Cell or Cranial) Arteritis

- **Epidemiology: Generally Caucasians over age 60; fellow eye involved 75% within 2 wks without treatment**
- **Hx: HA, scalp tenderness, jaw claudication, malaise**
- **Ocular expressions: AION, CRAO/BRAO, EOM muscle palsies resulting in diplopia**
- **Medical Consultation with STAT ESR (results same day), CRP, fasting blood glucose, CBC**
- **If A-AION, then high dose I.V. methylprednisolone then oral taper**
- **Cosider temporal artery biopsy and rheumatology consult for steroid management**

GCA: Role of ESR and CRP

- **ESR clinical thresholds relative to GCA**
  - Men: Age ÷ 2 ; Women: Age + 10 ÷ 2
  - ESR sensitivity (76-86%); CRP (97%); both (99%)-
  - When CRP is normal, but ESR is elevated, consider other disorders beyond GCA Ophthalmology, October 2006

- **Best predictive lab studies: ESR, CRP, thrombocytosis**
  - ESR: Greater than 50-100 mm/hr (1.5 times)
  - CRP: Greater than 2.45 mg/dl (5.3 times)
  - Thrombocytosis: Greater than 400,000/uL (4.2 times)
- **With all 3 tests positive: 8 times odds of (+) TAB**
  - ***Ophthalmology, June 2011***

Finer Points Regarding GCA

- **Positive TAB remains "gold standard"**
- **A 1cm section of the STA is ample**
- **TAB results still valid at 2 weeks post steroid treatment**
- **Both ESR and CRP are helpful in predicting a positive TAB**
- **Statins and NSAIDs cause ESR to be about 25% lower but CRP is unaffected by these drugs**
- **Significant anemia can cause a falsely high ESR**

Reference: Survey of Oph. Vol 61. July-Aug 2016

What is Polymyalgia Rheumatica?

- **Muscle pain and stiffness of the neck, shoulders and pelvic girdles in people over age 50**
- **Usually occurs in the morning and lasts 30-60 minutes**
- **GCA & PMR: commonly occur together and may represent a spectrum of the same pathophysiology**
- **Both can be accompanied by fever, malaise, arthralgias, myalgias, weight loss and anemia**
- **Both conditions remain idiopathic**

Reference: Survey of Oph. Vol 61. July-Aug 2016

Carotid Auscultation - When?

- Retinal emboli (Hollenhorst plaques)
- History of transient ischemic attack (TIA)
- Unilateral or asymmetric glaucoma
- Unilateral or asymmetric hypertensive retinopathy
- Unilateral or asymmetric diabetic retinopathy
- Rubeosis iridis (no history of CRVO)

Optic Nerve Head Drusen

- Pseudopapilledema (disc vessels can be clearly seen)
- High refractile granular bodies of calcium and amorphous granular material
- Small, translucent, yellowish pearls
- Autosomal dominant (check family members)
- Generally bilateral; more often nasal side of disc
- Can be associated with juxtapapillary heme
- May be buried in children
- Rarely associated with significant loss of vision
- Up to 75% have VF defects
- Management: 30-2 VF, disc photos q1-2 years

Pituitary Adenomas

- **Classification**
  - Secreting - produce endocrine symptoms early and present when tumor is still small
  - Nonsecreting - large size and present with visual loss
- **Initial symptoms - nonspecific headache, and vague blurring of vision**
- **Bitemporal VF defects respect vertical midline**
- **Ocular signs may include diplopia, “see-saw” nystagmus, optic disc pallor**

Craniopharyngioma

- Slow growing tumor arising from nests of squamous epithelial cells that are remnants of Rathke's pouch lying between anterior and posterior lobes of pituitary gland
- Most common in children
- In adults - progressive VF loss associated with endocrine disturbances and dementia
- Bitemporal hemianopsia most common VF deficit (incongruous homonymous hemianopsia of optic tract origin frequent)

Functional Visual Loss - Overview

- Unexplainable visual compromise
- Can involve: visual acuity (1/4), visual field (1/4), or both (1/2). Bilaterally in about 65%.
- Expressed independently across socioeconomic strata
- Female to male ratio: 3 to 1
- General age range: 10 to 40 years
- Can occur as an overlay of organic disease in approximately 15% of patients
- Most patients do not have psychiatric disease
- About 1/3 have stress, anxiety, and depression (SADness)
- Firm, compassionate reassurance works best

Functional Visual Loss - Testing

- Pupillary assessment
- Optokinetic responses
- Stereoacuity
- Slow, meticulous refraction with encouragement
- Assess VA from smaller to larger letters
- Acuity testing with fogging
- Persistence of unilateral field defect under binocular conditions
- Tangent screen at 1 meter, then 2 meters
- Electrophysiological assessment

“Functional” Visual Loss – Organic Disease

- **Only rarely is an organic disease found to be the cause when functional visual loss is suspected**
- **Most likely organic disease “rule-outs”**
  - Subclinical retinopathy (Stargardt’s, cone dystrophy, etc)
  - Atypical retrobulbar optic neuropathies (Leber’s, etc)
  - Small occipital infarcts (consider 10-2 HVF)
- **Central scotomas are more likely to be of organic etiology**

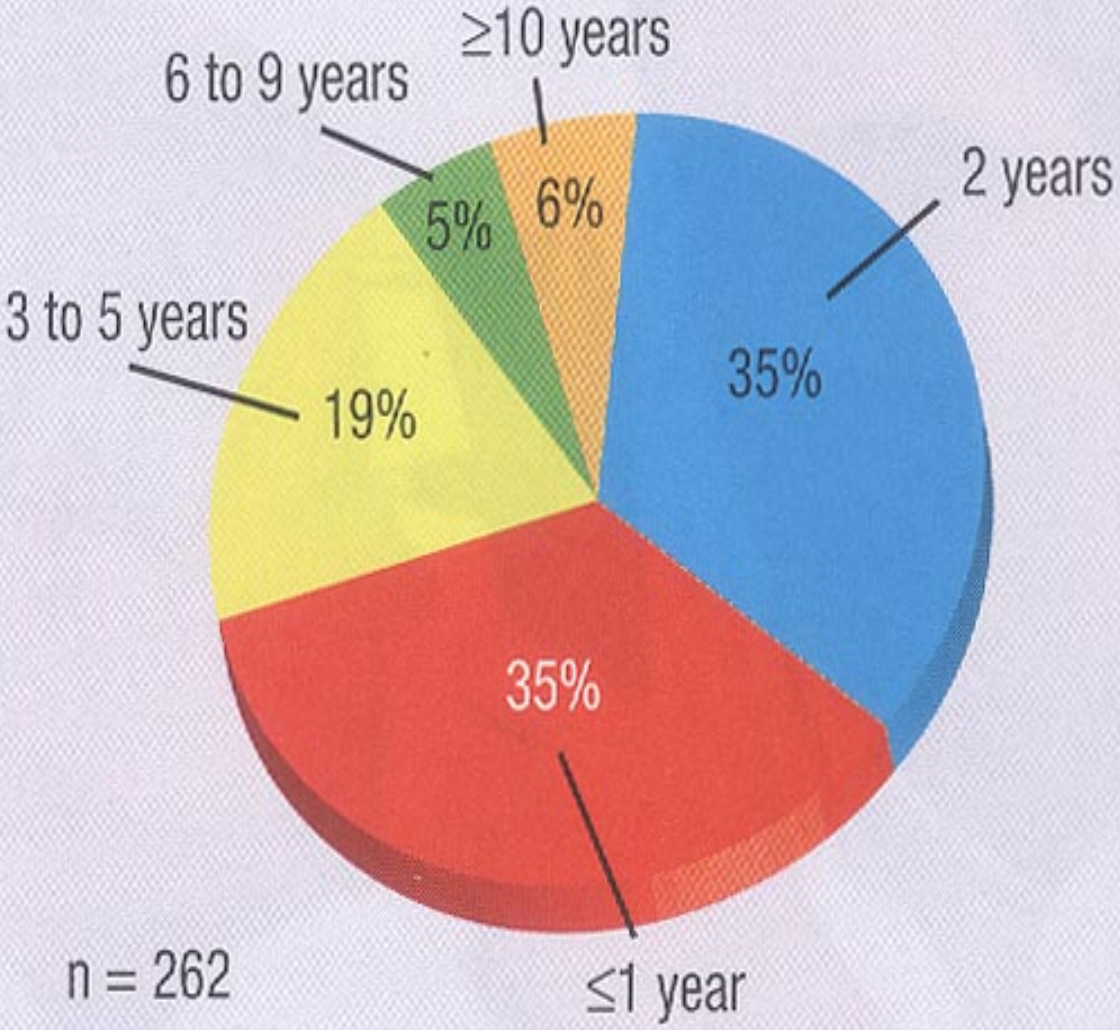
Functional Visual Loss - Children

- **Age distribution: 9-18 years; mostly girls**
- **Home and/or school dysfunctions seen in about half**
- **Migraine (with aura) is present in about 20%**
- **Rule out: cone dystrophy, Stargardt's and Leber's**
- **Explain impact of stress, anxiety, and depression**
- **Be compassionate, forthright, firm, reassuring**
  - More than half resolve with this approach

Functional Visual Loss - Adults

- Age range: 20-60 (fairly evenly distributed)
- About 1/3 have psychiatric disease
- Stress, anxiety, depression (SADness) in about 1/3
- Migraine in 10-15% (about half with aura)
- Antecedent physical trauma (like closed head injury) is common
- Litigation seems to be common contributor
- Making the firm Dx of FVL is, in and of itself, reassuring to most patients
- Identify, if possible, etiologic stressor
- Confident, firm reassurance is essential

Doctor, how long has it been since *you* had a complete eye exam?



Source: *Review of Optometry*'s 2014 Diagnostic Technology Survey

Nearly one-third (30%) of ODs haven't had a complete eye exam in three years or more, according to our recent Diagnostic Technology Survey.

Still, that's better than what ODs said in our survey in 2012, in which 34% reported that it'd been longer than three years since their last exam.

The good news is that 70% of ODs have had an eye exam in the past two years.

Safety of Phenylephrine

“Phenylephrine, 2.5% leads to no clinically meaningful change in blood pressure or heartrate and can be considered safe to use in clinical routine. The changes in BP and HR seen with phenylephrine, 10%, are short lived and of uncertain clinical relevance.”

JAMA-Oph, June 2015

Choroidal Melanoma Data

- ***Risk of Malignant Transformation of a Choroidal Nevus:*** **"If it is assumed that all choroidal melanomas arise from preexisting nevi, then the published data suggest a low rate (1/8845) of malignant transformation of a choroidal nevus in the U.S. white population." (Ophthalmology, Oct 2005)**
- ***Incidence of Uveal Melanoma:*** **"The annual age-adjusted incidence (per million population) of uveal melanoma was 0.31 (black), 0.38 (Asian), 1.67 (Hispanic), and 6.02 (non-Hispanic white)** ***(AJO, Oct 2005)***

Epidemiological Perspective on Choroidal Nevi

- **"White race" is the only known risk factor**
- **No association with skin melanomas, or other CA**
- **Prevalence increases with age, especially among Hispanics**
- **Overall prevalence:**
  - 14-28% in Whites
  - 1.5-3% in Blacks
  - 7-14% in Hispanics
  - Very low in Asians / Indians

Ophthalmology. October, 2015

Perspective on Posterior Vitreous Detachment

- Occurs mostly between ages 50 and 70 (peak incidence 62)
- No association with refractive error, except patients with -3.00D or more go to P.V.D. 5-10 years earlier
- 80-90% of breaks associated with P.V.D. are in the superior quadrants
- Within 2 years, 10% of patients will develop a P.V.D. in the fellow eye

Timing and RD Repair: Is there a hurry?

- **Preoperative VA is the strongest predictor of postoperative VA**
- **When control vision is affected, about 30% of patients ultimately achieve 20/40 or better**
- **"There is no difference in VA outcomes among patients who underwent within the first week of onset."**
- **VA can improve for months to years after surgical repair**
- **There was no association between duration of macular detachment and postoperative VA**
- **"Clinical evidence suggests that the duration of macular detachment has a minor, if any, effect on visual outcome when repair is performed within about one week. Similarly, many fovea-sparing RD's can likely be deferred for a short period without affecting visual outcomes."**

JAMA Oph. November 2013