Systemic Disease and Ocular Sequelae

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Remember Why?

“Everyone always asks me, why do you want to be an optometrist? Well, I usually think to myself, why wouldn’t you want to be an optometrist? … I always knew that I wanted to be a doctor of some sort. I love people. I love the differences, the personalities, and the stories. I knew that I had to have a job someday where I was in constant contact with people. But just being in contact with people wasn’t enough; I knew that I wanted to do something where I could help those people, each and every day. One day, I want to have a job where I am excited to get out of bed in the morning to go to work; a job where I can love what I do. For me, that job is optometry.”

Ocular Clues

• Lights on
• History
• Pupils
• EOMs
• Vasculature
• Neural Testing

Diabetes Mellitus

• Increasing incidence and prevalence
• “lack of insulin secretion or increased resistance to insulin
• 14 million Americans
  • 10% over age 60
  • 20% over age 80
• Type I is 10%, prevalence is .2%
• Type II prevalence is 3.1%
• Leading cause of blindness in US age 20-74
5 Diabetes Mellitus
   Early detection
   • Vision changes
   • Polyurea or polyphagia or polydipsia
   • Weight loss
   • Delayed wound healing
   • Dry mouth
   • Dry skin
   • Recurrent infections

6 Diabetes Mellitus
   • Retinopathy accounts for 12% of all new blindness each year
   • >50,000 Americans blind due to DM
   • NPDR
     • Mild-ma, dot/blot hems, RTC yearly
     • Moderate- ma, cotton wool spots ,IRMA, RTC 6 months
     • Severe-hems or ma all 4 quadrants, venous beading 2 quadrants, IRMAs, RTC 3 mo
   • PDR
     • NVD or NVE

7 Ocular Complications w/ DM
   • Cataract 2-4x more prevalent, snow flake cataract
   • Glaucoma 5% vs 2% in general population
   • Cranial nerve III, IV, VI palsies
   • Smaller pupils, less reactive
   • RCE and reduced corneal healing
   • CRAO

8 Carotid Occlusive Disease
   • Asymmetric retinopathy
• Mid periphery hemorrhages
• Ocular Ischemic Syndrome occurs
  with occlusion of the internal carotid artery
• OIS in males>females 2:1
• Usually elderly patients
• Decreased vision in 90 percent of cases
• Eye Pain in 40 percent
• Hx of transient ischemic attacks or amaurosis fugax.
• Most commonly encountered systemic diseases are
  hypertension, diabetes, ischemic heart disease, stroke, and
  peripheral vascular disease

9 Ocular Ischemic Syndrome

10 Stroke
  • Hemianopsia
  • Personality or functional changes

11 Hypercholesterol
  • Normal cholesterol levels
  • Corneal findings
    • Arcus Senilis
  • Vascular Changes
  • Skin
    • xanthalsma

12 Hypercholesterol
  • Three types of retinal plaques
    1. Hollenhorst (cholesterol)-yellowish
      • From ipsilateral carotid
      • Rare to cause occlusion
      • Find at bifurcations
2. Calcific-whitish
   can cause BRAO
   in arteriole, not at bifurcation
   often from heart valves
3. Fibrino-platelet

13 Multiple Sclerosis
   • Chronic and episodic neurologic dysfunction due demyelination of central nervous system
   • Most often effects the brain, spinal cord and optic nerve
   • Ophthalmic manifestations
     • Optic neuritis
     • Nystagmus
     • Internuclear ophthalmoplegia
     • Cranial nerve palsies III and VI
   • 2-3x more common in women
   • Most common in caucasians of European decent
   • Usually between ages 20-50

14 Multiple Sclerosis
   • Diagnoses
   • MRI
     • 1-2mm white matter plaques
     • As large as several centimeters in some cases
   • Cerebral Spinal Fluid evaluations
     • Abnormal in 90% of MS patients
     • Elevated levels of IgG
     • OCT-Reduced NFL, even without optic neuritis episode
   *Still no definitive lab test for MS

15 Hypertension
• Asymptomatic
• Middle age or older
• Better control than ever
• Retinal artery narrowing and attenuation
• Nicking, flame hems,
• Cotton wool spots when diastolic BP > 110

16 Hypertension

• Macular star
• Tortuosity
• Associated ocular disease
• BRVO
• CRVO
• CRAO

17 Hypertension Treatment

• Lifestyle
• Weight loss
• BMI of 18-25
• Sodium update
• DASH diet
• Medical treatment
  • Beta blockers
  • Calcium Channel blockers
  • Angiotension Converting Enzyme (ACE) inhibitors

18 Thyroid Disease

19 Graves Disease Ophthalmopathy

• Dry eye
• Swelling
• Diplopia

20 Thyroid Ophthalmopathy
Infections  
Celiac and the Eye  
endoscopic intestinal biopsy  
Diagosis-Seriologic (IgA, and transglutaminase)  
Rheumatoid arthritis  
Celiac Disease  
Skin  
Obesity on the rise  
Sjogren’s  
Inflammatory Conditions  
Graves Disease  
Hypertension Treatment  
Sclerosis  
Molluscum Contagiosum  
Cataract  
Prevalence ~1% in US population  
Symptoms  
Onset varies, early or later in life  
2 million Americans  
Immune reaction to gluten protein found in wheat, barley, rye  
Seborrhoeic Dermatitis  
Acne Rosacea  
Obesity statistics by decade  

21 Inflammatory Conditions  
• Sjogrens Syndrome  
• Rheumatoid arthritis  
• Ankylosing Spondylitis  
• Reiter Syndrome  
• Sarcoidosis  

22 Severe Dry Eye  
• Dry Eye Causes  
  • Environmental  
  • Contact lens induced  
  • Age related  
  • Medication related  
  • Systemic Condition  

23 Dry Eye Classifications  

24 Sjogren’s Syndrome  
• 90% are women  
• 2-4 million people affected  
• Usually occurs after age 40  

25 Summary of Sjogren’s Syndrome Classification Criteria  
(need 4 of 6 for primary, 2 of 3 for secondary)  

1. Ocular symptoms (any 1 of 3)  
  Dry eyes > 3 months
Tear use > 3x/day
Foreign body sensation in eyes
2. Oral symptoms (1 of 3)
Dry mouth > 3 months
Swollen salivary glands
Need liquids to swallow
3. Ocular signs (1 of 2)
Unanesthetized Schirmer's < 5mm/5 min (both eyes)
Positive vital dye staining (rose bengal, fluorescein, lissamine green)
4. Oral signs (1 of 3)
Abnormal salivary gland scan
Abnormal parotid sialography or sialmetry
   Abnormal unstimulated salivary flow (< 0.1ml/min)
5. Positive lip biopsy
   Focal lymphatic sialadenitis (focus score > 1/4mm)
6. Positive Anti-SSA and / or SSB antibodies (ANA's)

Treating Sjogren's Syndrome

- Dry Mouth:
  - Saliva substitutes
  - Saliva stimulants
  - Interferon-alpha
  - Good oral hygiene practices
  - Lifestyle modifications

- Dry Eyes:
  - Artificial tears
  - Methylcellulose inserts
  - Eye ointments
  - Muscarinic agonist drugs
  - Immunomodulatory drugs
  - Autologous serum drops
  - Punctual occlusion surgery
Obesity

• USA Today (10/17, Hellmich) reports that data from the CDC’s National Center for Health Statistics indicate that obesity rates among US adults are leveling “off after several decades of skyrocketing growth.” Last year, approximately “34.9% of the people in this country were obese.” In 2010, 35.7% were considered obese. According to Cynthia Ogden, an epidemiologist with the National Center for Health Statistics, “Even though it looks like a slight drop in the percentage of adults who are obese, this difference is not statistically significant.”

• Bloomberg News (10/18, Ostrow) reports that although “more non-Hispanic white Americans are obese, the prevalence of obesity is highest among non-Hispanic blacks and Hispanics, the report” indicated. Approximately “43 percent of Hispanics and 48 percent of blacks are obese, compared with 33 percent of whites and 11 percent of Asians.” In a telephone interview, Ogden, who is the lead author of the report, said, “The prevalence of obesity is still high in the U.S. but it hasn’t changed. At least it’s not going up.”

• The Washington Times (10/18, Wetzstein) reports that the new data also indicated that weight gain “in middle age is common: Almost 40 percent of adults aged 40 to 59 were obese.” Comparatively, among those in “the 20-39 age group, only 29 percent of men and 32 percent of women tipped the high end of the scales.” Among those aged 60 and above, approximately “32 percent of men and 38 percent of women were obese.”

Obesity

• BMI
• Divide waist by height and it should be 0.5 or lower

Obesity on the rise
• Obesity statistics by decade

30 Skin
• Acne Rosacea
• Seborrhoeic Dermatitis
  • Both can lead to blepharitis and DED

31 Celiac Disease
• Immune-mediated chronic inflammation of the small intestine
• Immune reaction to gluten protein found in wheat, barley, rye and to some extent oats
• Damage to mucosal membrane of villi lining the intestine

32 Celiac Disease
• Incidence increased 5x over past 60 years
• 2 million Americans
• Onset varies, early or later in life
• Symptoms
  • Diarrhea
  • Abdominal pain
  • Bloating
  • Gas

33
• Prevalence ~1% in US population
  5-10% in DM type1
  Thyroid disease
  Turner and Down’s Syndrome
  Rheumatoid arthritis
  Sjogren’s Syndrome
• Diagnosis-Serologic (IgA, and transglutaminase)
  endoscopic intestinal biopsy

34 Celiac Disease
• Treatment
  • Lifetime diet alterations
  • Corticosteroids if diet doesn’t help

35 Celiac and the Eye
  • Cataract
  • Sjogrens
  • Dry Eye-Bitot’s spot
  • Thyroid Disease

36 Infections
  • HZO - Varicella
  • Molluscum Contagiosum
  • AIDS

37 Thanks
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