OCULOSYSTEMIC DISEASES

And the Drugs That Treat Them

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Financial Disclosure

Dr. Pizzimenti has no relevant financial relationships to declare.

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Course Goal

- To provide current, clinically-relevant information about oculo-systemic disease.
- To review potential side effects of commonly prescribed drugs for these conditions.

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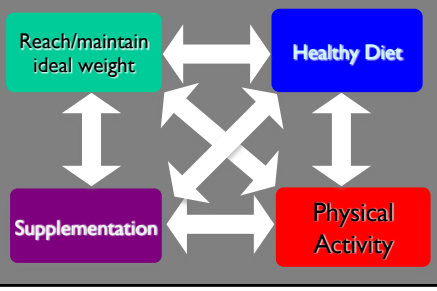
4 Pillars of Wellness



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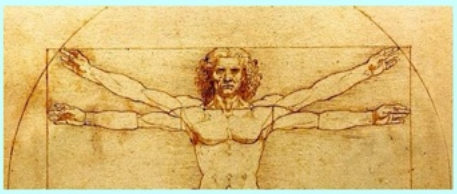
Every eye I've ever examined was attached to a whole person.



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The Eye in Systemic Disease

- Inflammatory
- Infectious
- Endocrine (DM)
- Vascular (CV Dx)
- Neurologic (Retina)
- Collagen-vascular
- Neoplastic
- Autoimmune

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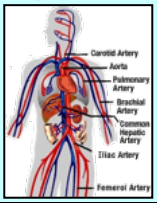
- The eye does not exist in isolation. It is an extension of the brain/CNS.*
- The anatomy of the eye is structured to serve the functions of the retina.
- Primary reason for dilation is to detect systemic disease.



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The eye is the only part of the body where neurological and vascular tissues can be directly and simultaneously viewed.

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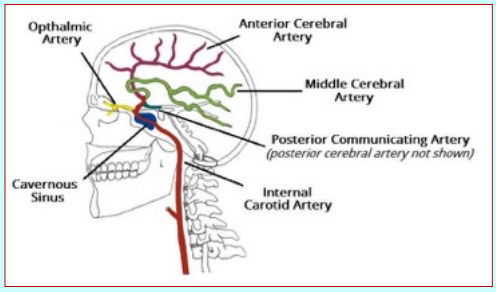
The Eye in Systemic Disease



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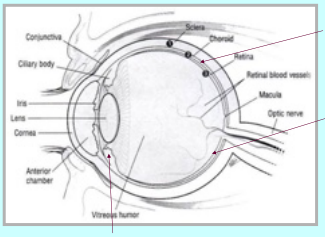
Ocular Blood Flow



Choroid 80%
Sympathetic NS
Retina 5 %
Auto-regulated
Iris / Ciliary Body 15%

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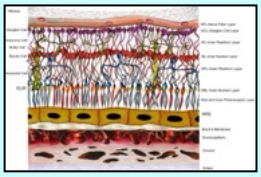
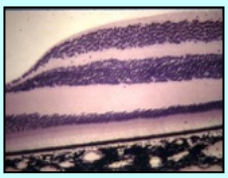
The Eye in Systemic Disease



Inner and Outer Blood Retinal Barriers



Retina/RPE, Choroidal Pigmentation

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Epidemics and Other Major Public Health Challenges

Public Health
Prevent. Promote. Protect.

Obesity/Excess Weight/type 2 DM
Smoking
Viral Dx
Autoimmune Dx
Age-related Eye Disease
Neurodegenerative Dx

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The Pathology of Obesity

Skin	Yeast Infections, Gout
Endocrine	Polycystic Ovarian Syndrome, Low Testosterone, High Estrogen
Heart	Heart Attack, Stroke, CHF
Pulmonary	Sleep Apnea
GI	Gallstones, GERD
Urinary	Incontinence
Gyno	Abnormal Menses, Infertility
Neuro	Depression, Memory Problems
Cancer	Breast, Colon, Prostate, Bladder, Esophagus
Post-Op	Pulmonary Embolism

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Diabesity

- M_____ S_____ is characterized by central (abdominal) obesity, dyslipidemia, raised blood pressure, and insulin resistance.
- *"Diabesity"*
  - Up to 97% of type 2 caused by excessive weight
  - Obesity = Increased weight caused by excess accumulation of fat.
  - "Over-fat" = normal BMI w/large waist
    - Visceral fat

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*** 3 or more are diagnostic of Metabolic Syndrome:**

- **** Waist circumference:**
  Men — > 40 inches
  Women — > 35 inches
- triglycerides ≧150 mg/dL
- HDL cholesterol:
  Men — <40 mg/dL
  Women — <50 mg/dL
- BP ≧130/85 mmHg
- FPG ≧100 mg/dL

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Audience Poll

- What will be the most significant non-COVID "pandemic" of the 21st century?

a) Obesity/type 2 DM
b) Sleep apnea
c) Smoking/vaping/e-cigs
d) Sick longevity
e) Other viral/infectious disease

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Obesity and Body Mass Index (BMI)

- World Health Organization (WHO) Classification
  - For adults, Grade 1 (simply called overweight) is a BMI of 25-29.9 kg/m2.
  - Grade 2 (commonly called obesity) is a BMI of 30-39.9 kg/m2.
  - Grade 3 (commonly called severe obesity) is a BMI greater than or equal to 40 kg/m2.

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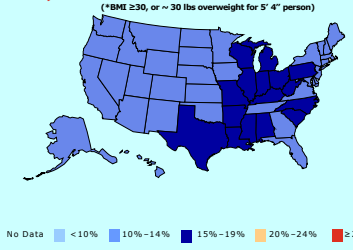
Obesity Trends* Among U.S. Adults

BRFSS, 1994



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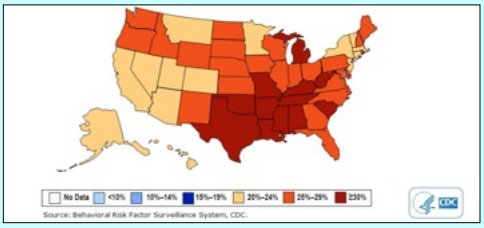
Obesity Trends-2012



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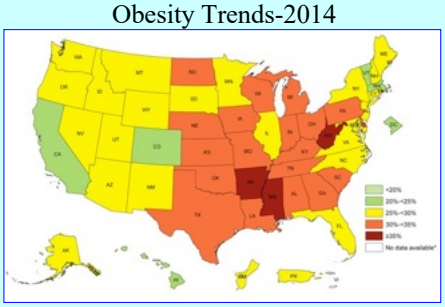
Obesity Trends-2014



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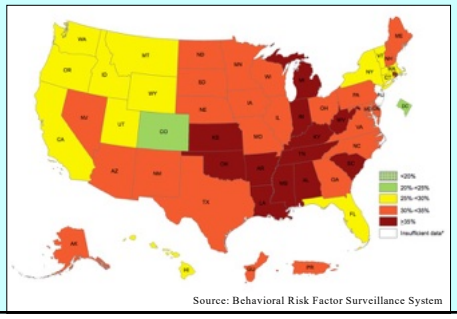
Obesity Trends-2019



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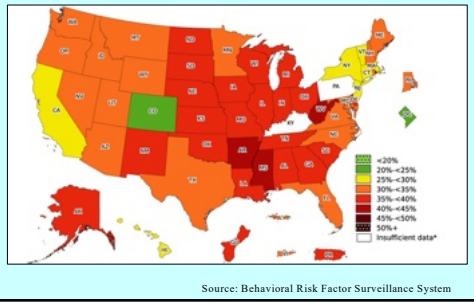
Obesity Trends-2024



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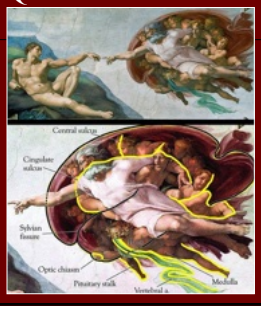
Questions & Answers



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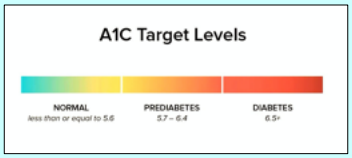
Obesity and Type 2 DM

The most highly associated systemic complication of **obesity** is type 2 DM.



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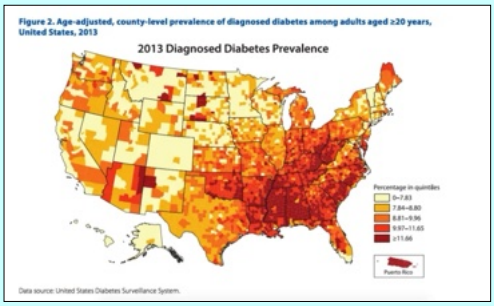
"Diabesity Belt"



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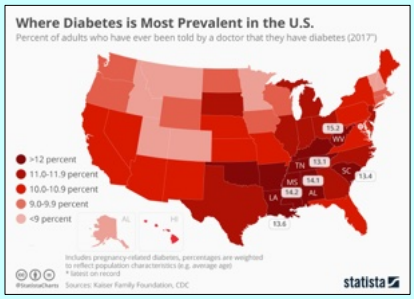
2017 DM Prevalence



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PHARMACOTHERAPY OF DIABESITY

- Metformin (Fortamet, Glumetza, others)
- Action
  - Limit the liver's ability to release sugar
  - Improve cells' sensitivity to insulin
- Advantages: Very effective* glycemic control
  - May lead to minor weight loss
  - Low cost
  - Longevity and cognition

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PHARMACOTHERAPY OF DIABESITY

- Metformin (Fortamet, Glumetza, others)
- Side effects
  - Temporary blur in older patients until BS stabilizes
  - Nausea
  - Stomach pain
  - Diarrhea
  - Rarely, harmful buildup of lactic acid — lactic acidosis — occurs in people with kidney failure or liver failure

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PHARMACOTHERAPY OF DIABESITY

- Incretin mimetics (GLP-1 receptor agonists)
- Medications
  - Dulaglutide (Trulicity)
  - Exenatide (Byetta, Bydureon Bcise)
  - Liraglutide (Saxenda, Victoza)
  - Lixisenatide (Adlyxin)
  - Semaglutide (Ozempic, Rybelsus, Wegovy, Zepbound)
- Action
  - Cause the release of insulin as blood sugar levels are rising

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PHARMACOTHERAPY OF DIABESITY

- Incretin mimetics (GLP-1 receptor agonists)
- Semaglutide (Ozempic, Rybelsus, Wegovy, Zepbound)
- Advantages
  - Decrease hunger
  - Leads to weight loss
  - May be used with metformin, basal insulin or a sulfonylurea
- Possible side effects: NAION?
  - Nausea
  - Vomiting
  - Diarrhea
  - Abdominal pain*
  - Increased risk of inflamed pancreas — pancreatitis

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AMERICAN OPTOMETRIC ASSOCIATION

New AOA Report:

GLP-1 Receptor Agonists and vision risk

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Highlights of AOA Report

- About 6% of the U.S. adult population take glucagon-like peptide-1 receptor agonists (GLP-1RAs) for chronic diseases or weight loss.
- Among the rare ocular side effects of GLP-1RAs is non-arteritic anterior ischemic optic neuropathy (NAION), which can cause permanent loss of vision.

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Highlights of AOA Report

- GLP-1RAs are associated with exacerbation of AMD, progression of diabetic retinopathy (rebound retinopathy), and, most seriously, NAION.
- Up to 1 in 10,000 patients taking GLP-1 RA develop NAION.
  - This represents a two-fold increased risk.

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RF and Common Signs of NAION

- Anatomically "crowded disc" is a RF.
- Others include diabetes, hypertension, hyperlipidemia and obstructive sleep apnea.
- Common signs of NAION include:
  - Sudden, unilateral painless loss of vision
  - Visual field defect (usually altitudinal)
  - Blurred vision
  - Dyschromatopsia (new onset impairment or loss of color vision)
  - Relative afferent pupillary defect
  - Optic disc swelling, with or without hemorrhages

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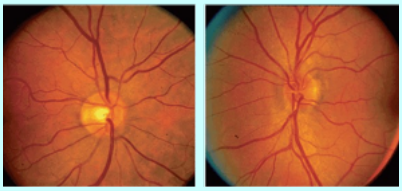
"Disc at Risk"



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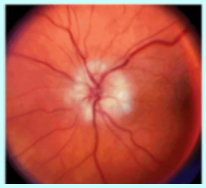
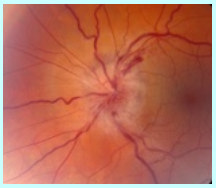
AAION vs NAION





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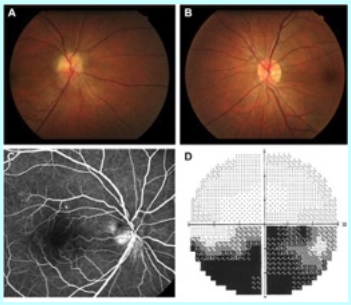
NAION-OD 1 mon later



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Highlights of AOA Report

- A patient starting a GLP-1RA—especially if they have diabetes or AMD— should have an in-person, comprehensive, dilated eye examination either within the 12 months prior to starting therapy or a baseline examination within one month of initiating therapy.

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Highlights of AOA Report

- Patients on GLP-1RAs are considered "at-risk," meaning they should:
  - Follow more frequent re-examination intervals
  - Receive individualized counseling regarding ocular risks
  - Receive collaborative care with all providers managing their diabetes, eye health, and other systemic conditions

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Audience Poll

- Have you had a patient on a GLP-1RA that developed one of the following?

a) Non-arteritic AION
b) New or worsening DR/DME
c) New or worsening AMD
d) New or worsening dry eye symptoms
e) No change in ocular symptoms or signs

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Case: 55 YOHM

5 ft 10 in, 295 lbs
Central blur OD/OS
Type 2 DM x 3 yrs
+OSA, +HTN, +Dyslipidemia

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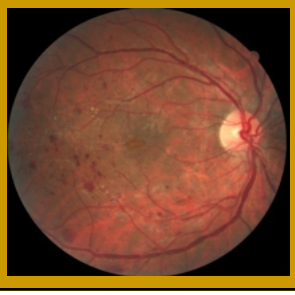
OD: 20/100



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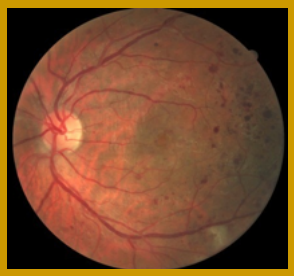
OS: 20/200



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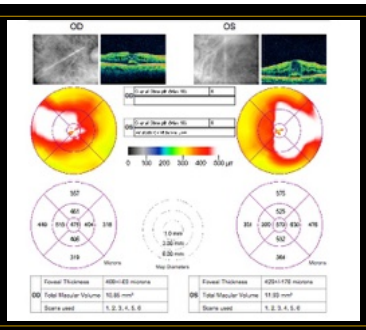

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QUESTION:

WHICH FACTORS MOST INFLUENCE THE ONSET, PROGRESSION AND VISUAL OUTCOME OF DIABETIC RETINOPATHY?

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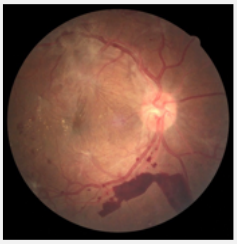
Systemic Conditions that May Exacerbate DR

- Dyslipidemia
- Hypertension
- Carotid occlusive dx
- Kidney disease
- Sleep apnea
- Anemia
- Obesity
- Vasculitis
- Neuropathy
- Nephropathy
- Vitamin D deficiency



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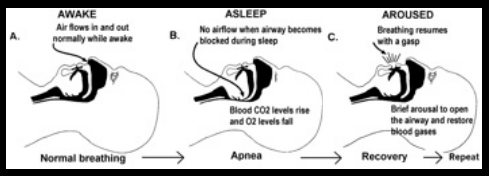

Impaired Blood Flow in OSA

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Ocular Complications of OSA

- Changes in eyelid tissue
  - Floppy eyelid syndrome (FES)
- Changes in cornea
  - K-conus
- Changes in the optic nerve
  - The glaucomas
    - Open angle (OAG)
    - IOP-independent GLC (NTG) *
  - Non-arteritic anterior ischemic optic neuropathy (NAION)
  - Optic Disc Edema (IIH and non-IIH)
- Changes in retina: DR, HR, RVO, CSC*

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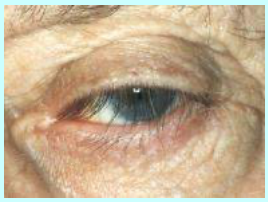

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Floppy Eyelid Syndrome (FES)

- History: obesity, type 2 DM → suspect OSA
- Treatment/Management
  - CPAP
  - Lubricate
  - Anti-inflamm
  - Antimicrobial
  - Protect eye
    - Bandage CL
    - AMT
  - Combo Therapy

40 y/o BF
+FES, OSA, IIH

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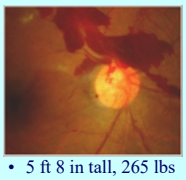
32 yo WM



- 5 ft 8 in tall, 265 lbs
- "sees red" OD
- Type 2 DM x 3 yrs
- Recent Dx. Obstructive Sleep Apnea (OSA)

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SAS and Type 2 DM

- The ADA recommends that all type 2 patients be screened for OSA, and vice versa.*

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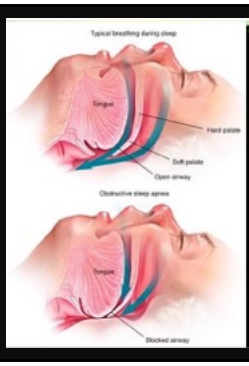

FDA APPROVES FIRST MED FOR OBSTRUCTIVE SLEEP APNEA

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FDA APPROVES FIRST MED FOR OBSTRUCTIVE SLEEP APNEA

- December, 2024
- FDA approved Zepbound (tirzepatide) for mod-severe OSA.
- To be used with diet, increases physical activity.
- Works by activating receptors of hormones such as glucagon-like peptide-1 (GLP-1) and glucose-dependent insulino-tropic polypeptide (GIP).
- This reduces appetite, food intake, leading to weight loss.
- By reducing body weight, two studies showed improvements in OSA.

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AMERICAN ACADEMY OF SLEEP MEDICINE (WAKE / SLEEP)

UNITE!

American Optometric Association

AMERICAN ACADEMY OF SLEEP MEDICINE (WAKE / SLEEP)

American Optometric Association

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Questions and Answers

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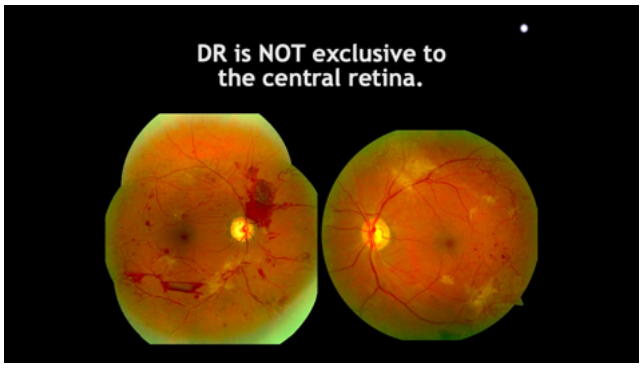

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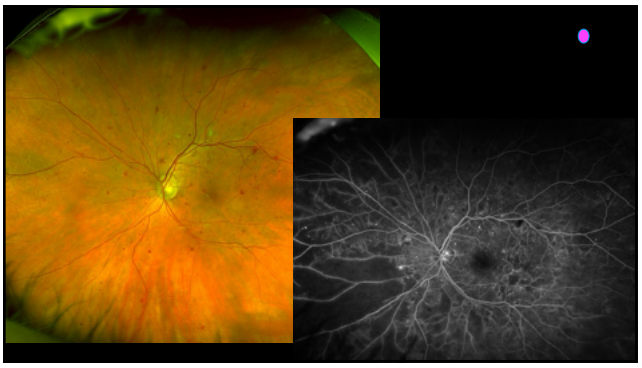

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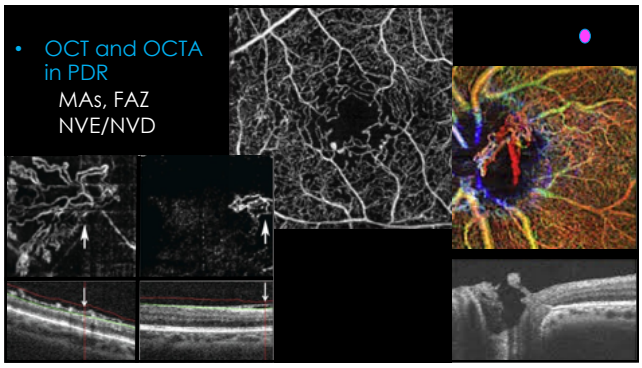

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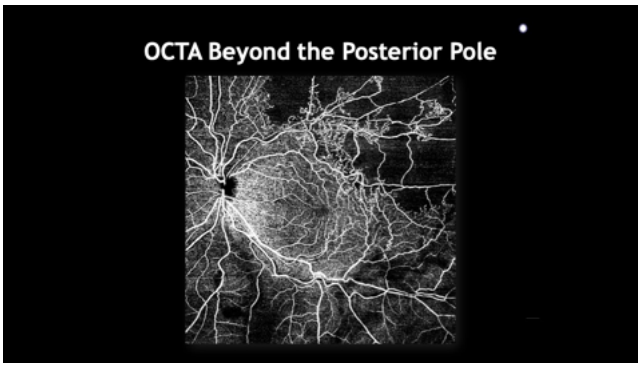

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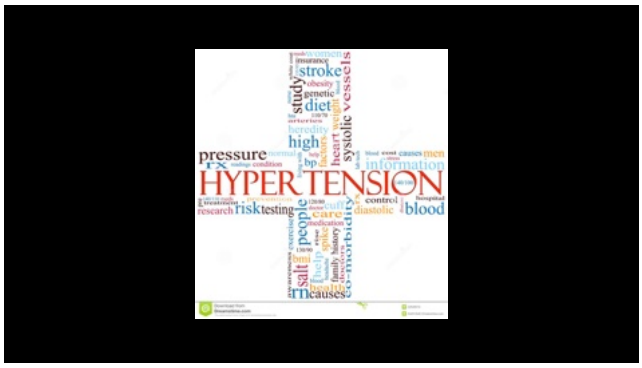

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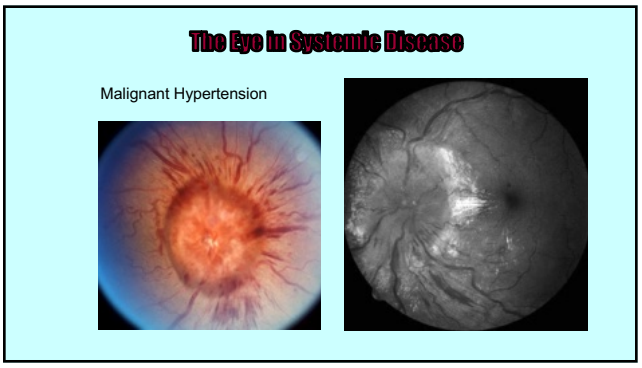

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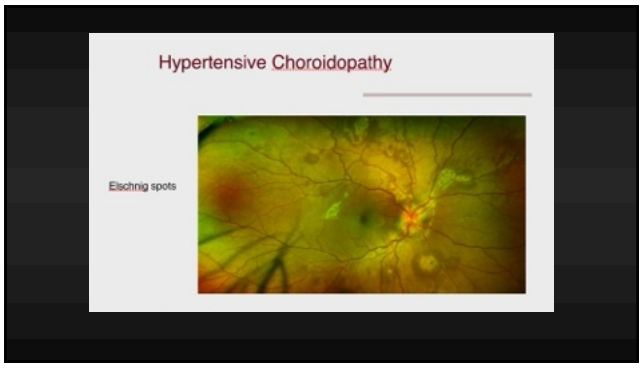

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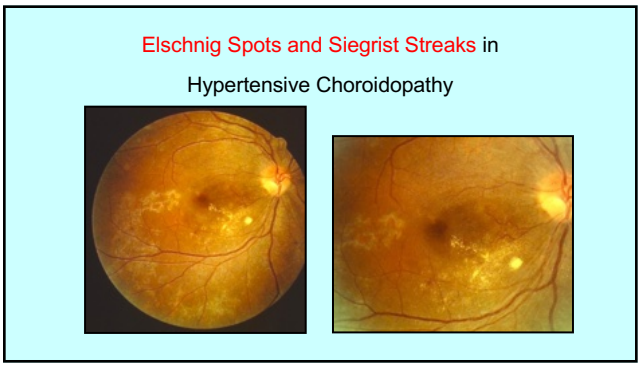

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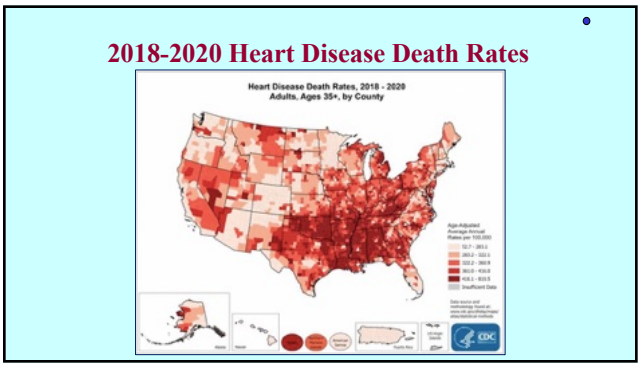

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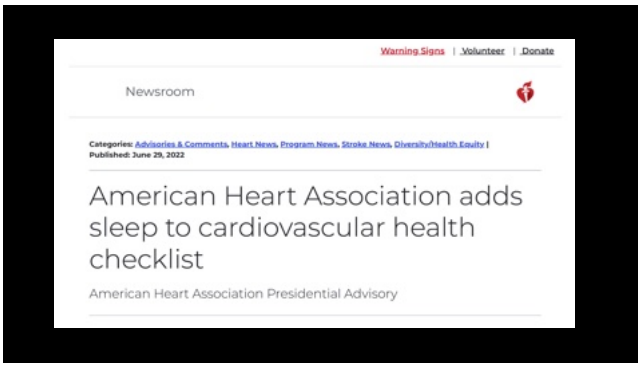

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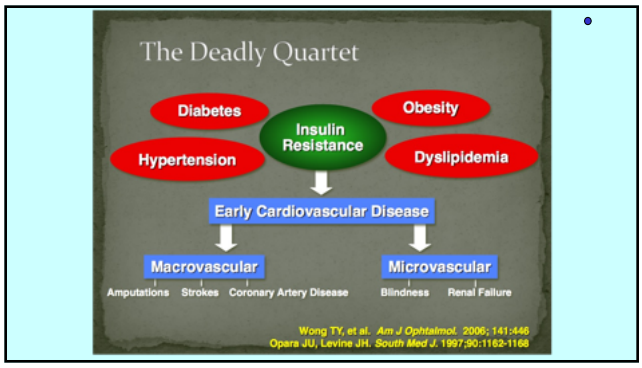

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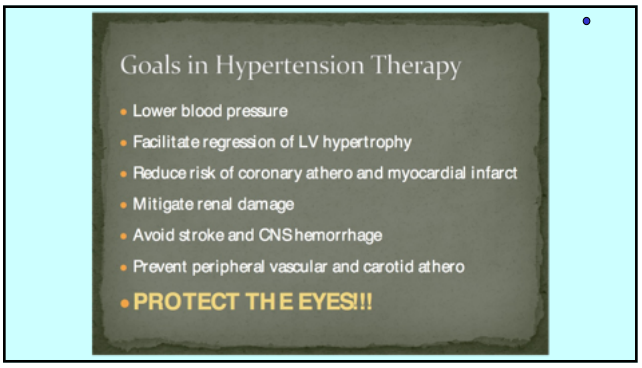

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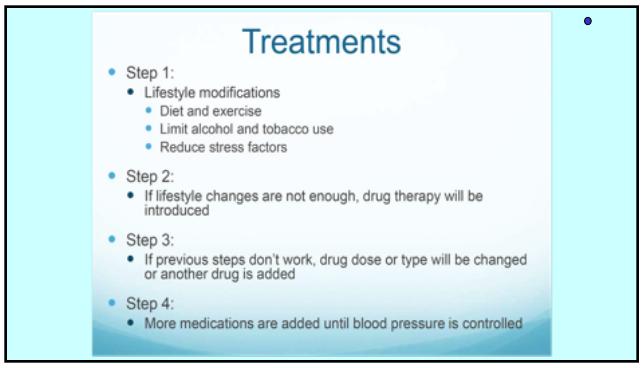

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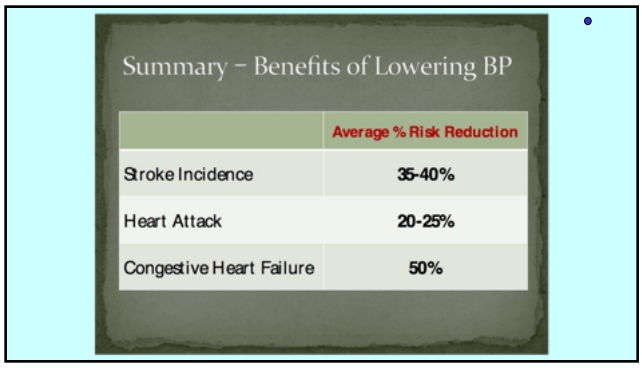


82

Audience Poll

- Have you had a patient on a GLP-1RA that developed one of the following?

a) Non-arteritic AION
b) New or worsening of DR/DME
c) New or worsening dry eye symptoms
d) No change in ocular symptoms or signs

83

Hypoperfusion Retinopathy

and the

Ocular Ischemic Syndrome

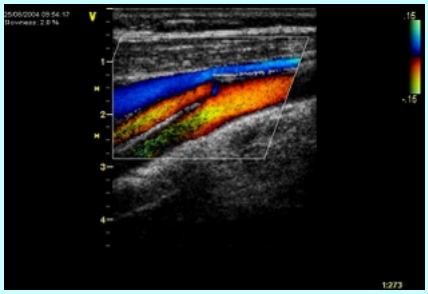
84

Carotid Artery Occlusive Disease

**Dot and Blot hemes in mid-peripheral retina

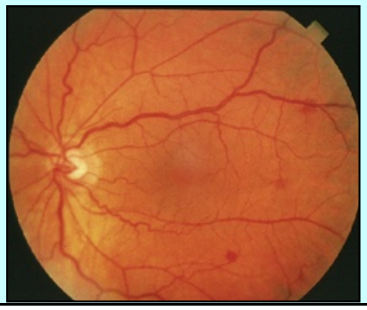
85

Carotid Doppler (Duplex)



86

Mid-peripheral Hemes in Hypoperfusion Retinopathy

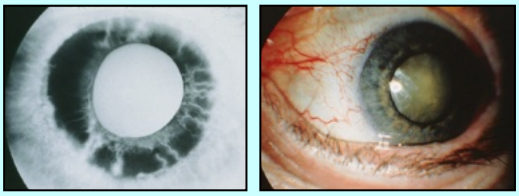


87

Hypoperfusion Retinopathy—same eye

88

NVI and Cataract in Ocular Ischemic Syndrome



The Ocular Ischemic Syndrome (OIS)

89

Key Point ▲

- Bilateral involvement in patients with ocular ischemic syndrome may occur in up to ~20% of all cases.

90

The Eye in Systemic Disease

Pathogenesis: Ocular Ischemic Syndrome

Non-invasive Carotid Doppler (Duplex) ultrasound**

- Atheromatous ulceration and stenosis at the bifurcation of the common carotid artery

91

Key Point

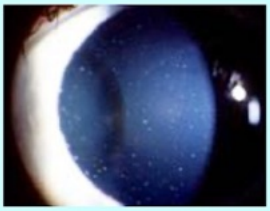
- The most common etiology of ocular ischemic syndrome is severe unilateral or bilateral atherosclerotic disease of the Internal Carotid A.

92

Questions & Answers

93

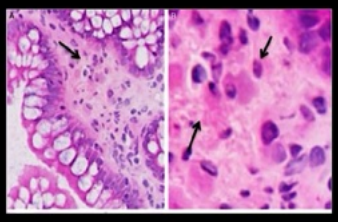
A Word About Uveitis



94

GRANULOMATOUS UVEITIS

- An organized collection of macrophages.
- A type of WBC that surrounds and kills microorganisms, removes dead cells, and stimulates the action of other immune system cells.



95

A granulomatous uveitis has an increased likelihood of being part of a s_____ disease process.

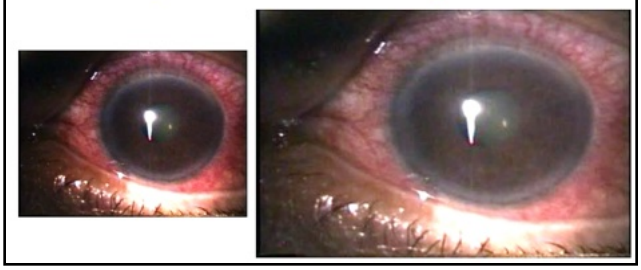
96

Key Points: Sarcoidosis**

- A multi-system disease.
- Most often occurs between 20-40 years of age, with women being diagnosed more frequently than men.
- 10 to 17 times more common in African-Americans than in Caucasians.

97

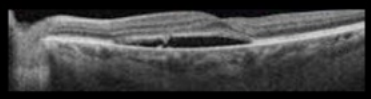
Serous/Exudative RD in Posterior Scleritis: Mainstay scleritis treatment is po steroid



98

SIDE EFFECTS OF STEROID TREATMENT

- By any route of administration:
  - Weight gain
  - PSC
  - CSC
  - GLC



99

OCT has forever changed screening protocols for drug toxicity.

100

Oculosystemic Diseases

- Plaquenil (hydroxychloroquine) is used to treat several autoimmune conditions and to prevent and treat malaria. It works by regulating the immune system to decrease inflammation.
- Common medical uses for Plaquenil include:
  - Systemic Lupus Erythematosus (SLE): An autoimmune disease that can affect the joints, skin, blood vessels, and organs.
  - Chronic Discoid Lupus Erythematosus (DLE): An inflammatory condition that primarily affects the skin.
  - Rheumatoid Arthritis (RA): An autoimmune disease that causes pain, swelling, and stiffness in the joints.
  - Malaria: Used to prevent the disease when traveling to endemic areas, and also to treat acute, uncomplicated cases of certain types of malaria.

101

Oculosystemic Diseases

- Plaquenil (hydroxychloroquine)
- Other potential uses
- In some cases, healthcare providers may also prescribe Plaquenil "off-label" for other inflammatory conditions, such as:
  - Sjögren's syndrome
  - Porphyria cutanea tarda (a rare skin disorder)
  - Dermatomyositis (an inflammatory muscle and skin condition)

102

HYDROXYCHLOROQUINE
HCQ: TRADE NAME, PLAQUENIL

CHLOROQUINE
CQ: TRADE NAME, ARALEN

103

HCQ TOXICITY

Perform DFE annually.**

What additional testing/work-up is appropriate?

104

Case

- 65 Year old Asian Female
- Comes in with complaints of blurred and dimmed vision
- PMH: Rheumatoid Arthritis x 15 years
  - Our patient (~110-120 lbs) was taking 400 mg/d for 15 yrs
- OcHx: S/P CE and IOL OU

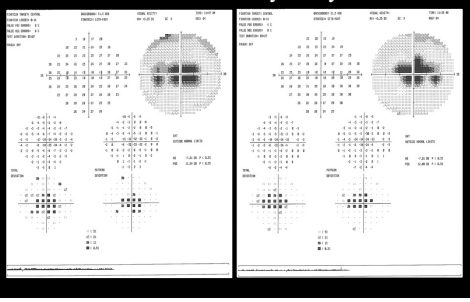
105

Ophthalmic Exam

- VA:
  - OD: 20/60 OS: 20/70
- IOP
  - OD: 14 OS: 13
- SLE:
  - OD: PCIOL OS: PCIOL
- DFE:

106

Patient Case: VY 65 y/o Asian Female
Central Threshold Perimetry: Why 30-2?



107

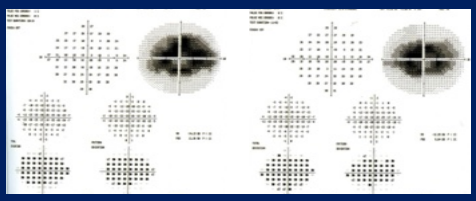
Pericentral Retinopathy and Racial Differences in Hydroxychloroquine Toxicity

Ronald B. Melles, MD,[1] Michael F. Marmor, MD[2]

Melles RB, Marmor MF. Pericentral retinopathy and racial differences in hydroxychloroquine toxicity. Ophthalmology 2015; 122: 110–116.

108

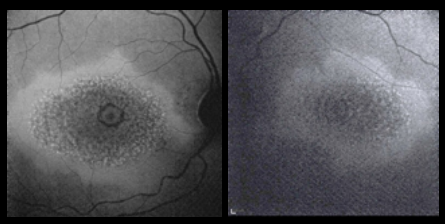
PATIENT CASE: VY
CENTRAL 10-2 VF



109

Fundus Auto-fluorescence (FAF): Case VY

OD OS

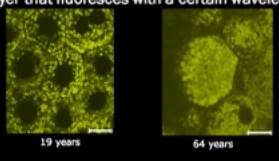


110

Imaging Technologies: FAF

What is autofluorescence in the retina?

- It is the fluorescence of the lipofuscin molecule within the RPE cell layer that fluoresces with a certain wavelength.



111

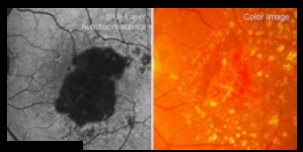
MULTIMODAL IMAGING:

FUNDUS AUTOFLUORESCENCE

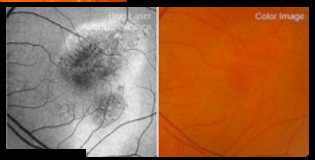
While OCT assesses structure, and IVFA assesses BRB integrity, FAF captures **metabolic activity.**

112

ADDITIONAL CLINICAL VALUE OF FAF



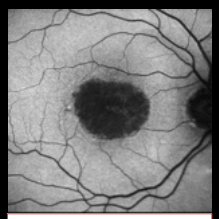
Advanced atrophic AMD



CSC

113

FAF AND PROGRESSION-GEOGRAPHIC ATROPHY



Progression of GA over an 18 month period

114

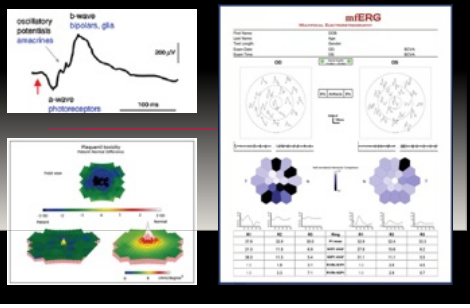
Audience Poll

- How many patients have you seen in the past 5 years with plaquenil macular toxicity?

a) 0
b) 1-2
c) 3-5
d) More than 5

115

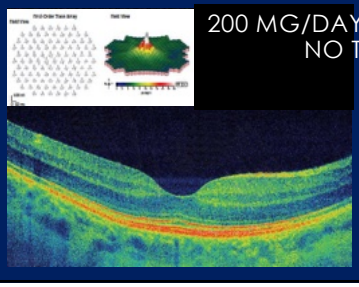
PLAQUENIL AND MF-ERG



116

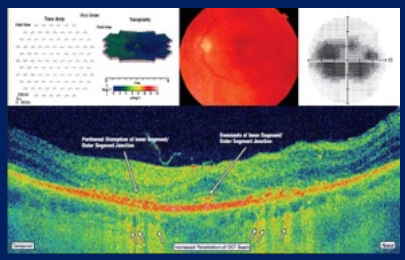
ANOTHER PATIENT ON PLAQUENIL

200 MG/DAY X 5 YRS
NO TOXICITY



117

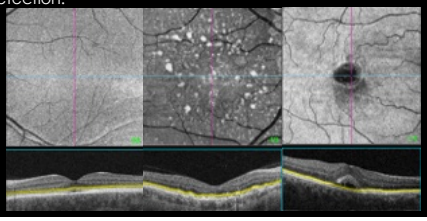
PLAQUENIL TOXICITY- MFERG



118

PLAQUENIL TOXICITY

- By the time "flying saucer" or "bullseye" is detected, significant toxic damage has occurred.
- May progresses even if drug is stopped.
- Ganglion cell analysis and en face OCT may offer early detection.



119

What is the recommended maximum HCQ dose ?

- Calculate Max Dose in mg/day
- 2.3 x weight (in lbs.) = Max dose
- At recommended dose, risk of toxicity is < 1% after 5 years, < 2% after 10 yrs.
- Risk rises to almost 20% after 20 years. **
  - Our patient VY (~110-120 lbs) was taking 400 mg/d for 20 yrs
- Risk for HCQ maculopathy depends on daily dose, duration of use

120

American Academy of Ophthalmology Statement

Recommendations on Screening for Chloroquine and Hydroxychloroquine Retinopathy (2016 Revision)

Michael F. Marmor, MD,[1] Ulrich Kellner, MD,[2] Timothy Y.Y. Lai, MD, FRCOphth,[3] Ronald B. Melles, MD,[4] William F. Mieler, MD,[5] for the American Academy of Ophthalmology

Background: The American Academy of Ophthalmology recommendations on screening for chloroquine (CQ) and hydroxychloroquine (HCQ) retinopathy are revised in light of new information about the prevalence of toxicity, risk factors, fundus distribution, and effectiveness of screening tools.

Pattern of Retinopathy: Although the locus of toxic damage is parafoveal in many eyes, Asian patients often show an extramacular pattern of damage.

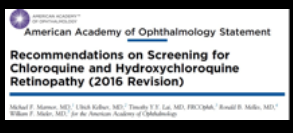
Dose: We recommend a maximum daily HCQ use of ≤5.0 mg/kg real weight, which correlates better with risk than ideal weight. There are no similar demographic data for CQ, but dose comparisons in older literature suggest using ≤2.3 mg/kg real weight.

Risk of Toxicity: The risk of toxicity is dependent on daily dose and duration of use. At recommended doses, the risk of toxicity up to 5 years is under 1% and up to 10 years is under 2%, but it rises to almost 20% after 20 years. However, even after 20 years, a patient without toxicity has only a 4% risk of converting in the subsequent year.

121

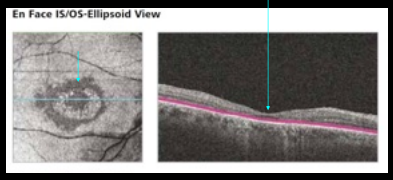
HCQ SCREENING FREQUENCY

- Baseline: DFE within 1 year of starting HCQ
- Visual field and SD-OCT if macular abnormalities are present at baseline
- Annual screening: Begin after 5 years of use
  - Sooner in presence of "major risk factors"



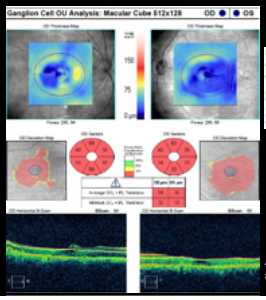
122

PLAQUENIL MACULOPATHY WITH CLASSIC BULL'S EYE DUE TO ANNULAR FOVEAL ATROPHY



123

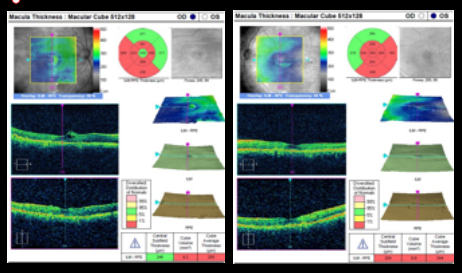
GCL + IPL loss in HCQ maculopathy



Acknowledgement: Drs. K. Ramirez and J. Rabin, UIWRSO VNS clinic

124

Note significantly thin maculae and cystic retinal changes

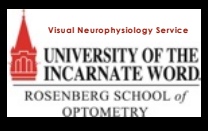


Acknowledgement: Drs. K. Ramirez and J. Rabin, UIWRSO VNS clinic

125

FROM THE AUTHORS

- "(Real) weight-based dosage and early screening (DFE, central fields, OCT, FAF, mfERG) are essential to prevent HCQ toxicity,
- particularly with certain risk factors: small stature, high total dosage, diminished renal function, concomitant tamoxifen use, and/or existing retinal/macular disease.
- Interprofessional collaboration to optimize patient outcomes."



126

Plaquenil Maculopathy

- Testing for patients on Plaquenil
  - DFE
  - VF 10-2 W/W (add 24-2 or 30-2 in Asians)
  - SD or SS-OCT: raster and cube scans
  - FAF
  - mfERG
- Increase frequency of monitoring (2+ visits per year) w/degree of pathophysiology.

127

Summary and Case Outcome

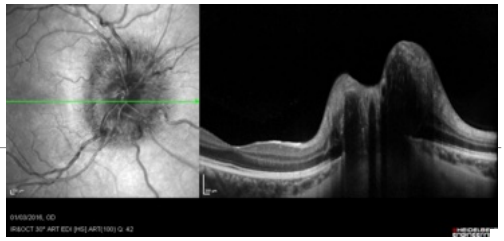
- MMI and other diagnostics are essential in evaluation of patients using CQ or HCQ on a chronic basis.
- Co-management team includes:
  - Optometry
  - Rheumatology
    - Other therapies: methotrexate, TNF inhibitors (our patient VY was switched to this drug class)

128

Q & A

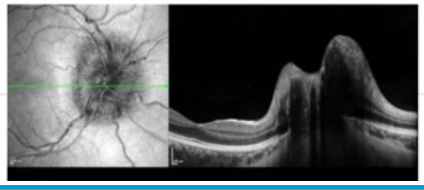
129

IIH + OSA



130

- 28 yo WM w/TVO OD/OS:
- BMI = 29
- MRI/MRV, followed by LP, extensive serology



131

- Empty Sella
- T-1 sag
- IIH + OSA

132

- Empty Sella
- T-1 coronal
- IIH + OSA

133

Treatment of IIH

- 5-10% weight loss: diet w/inc physical activity
- Acetazolamide or topiramate to help the body produce less CSF
- Pain relievers for headaches
- Acetazolamide (Diamox)
  - Paresthesias, GI symptoms
  - Sulfa allergy?
  - Myopic shift
  - Ciliochoroidal effusions and acute angle-closure glaucoma (ACG)
    - Topical steroids, cycloplegics, and aqueous suppressant

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Topiramate (Topamax)

- Avoid prescribing topiramate if patient has narrow angles
  - Cilio-choroidal effusions and acute angle-closure glaucoma (ACG)
- Discontinue topiramate if angle closure glaucoma—especially with a myopic shift— is confirmed
  - Topical steroids, cycloplegics, and aqueous suppressant

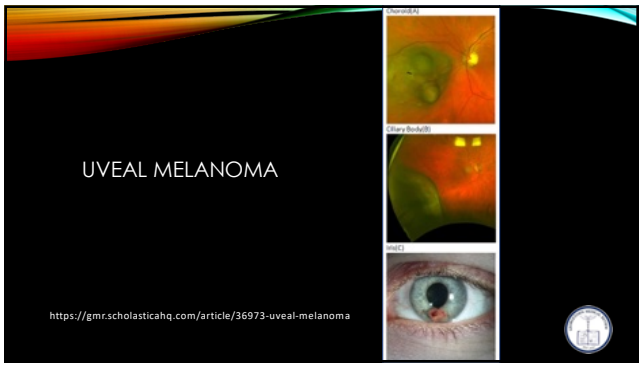
135

Case: The "Nevoma"

136

Follow or Co-manage?

137



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Co-manage Uveal Melanoma with:

- Retina/Ocular Oncology
- PCP
- General Oncology

139

To Find Small Ocular Melanoma
Using Helpful Hints Daily

- T= thickness **(>2mm)**
- F= subretinal fluid
- S= symptoms
- O= orange pigment
- M= margin touches disk

- No risk factors (<4%)
- 1 risk factor (36%)
- 3 risk factors (50%)
- 5 risk factors (70%)

DOCUMENTED GROWTH - MEANS EVERYTHING

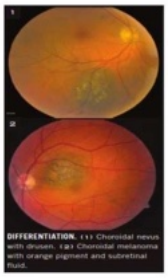
Using Helpful Hints Daily= Ultrasound hollow, halo absent, drusen absent

140

Nevus to melanoma

"To Find Small Ocular Melanoma Using Helpful Hints Daily"(TFSOM-UHHD)

T → *thickness greater than 2* mm,
F → *fluid subretinally*
S → *symptoms*
O → *Orange* pigment present,
M → *margin with in 3 mm* of the optic disc
UH → *USG hollowness* (versus solid/flat)
H → *halo*
D → *drusen absent*

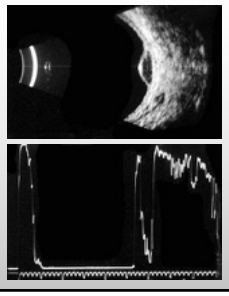


141

Echography of Small Choroidal Melanoma

B-Scan Echogram
Assess topographic features, including tumor shape, surface contour and boundaries

A-Scan Echogram
Internal structure, reflectivity, tumor height (elevation)



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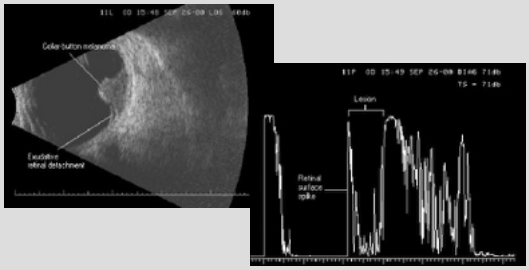
Echography of Large Melanoma



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EDI-OCT

ARCH OPHTHALMOL/VOL 130 (NO. 7), JULY 2012

CLINICAL SCIENCES

Enhanced Depth Imaging Optical Coherence Tomography of Small Choroidal Melanoma

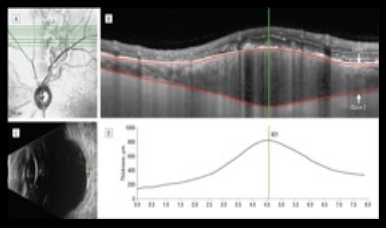
Comparison With Choroidal Nevus

Carol L. Shields, MD; Swathi Kaliki, MD; Duangnate Rojanaporn, MD; Sander R. Ferenczy, CRA; Jerry A. Shields, MD

- Mean small melanoma thickness was 1025 microns on EDI-OCT compared to 2300 microns on ultrasonography.

144

Enhanced Depth OCT (EDI) of a small melanoma



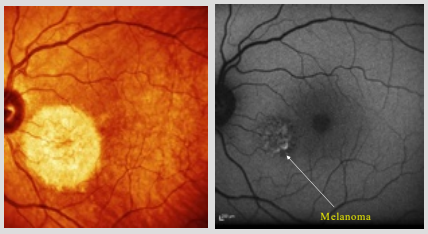
Shields, 2012

145

Orange Pigment = Lipofuscin

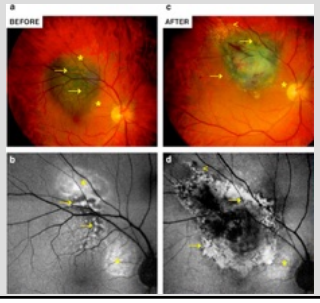
146

Fundus Autofluorescence (FAF) of a Small Choroidal Mass



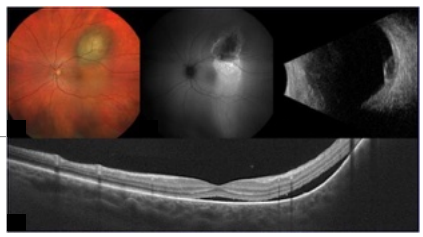
147

Fundus Autofluorescence (FAF) in Choroidal Melanoma



148

MMI: Uveal Melanoma

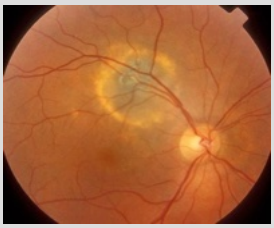


149

Nevus w/Drusen = Chronicity

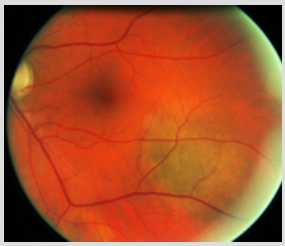
150

Halo Nevus = Chronicity



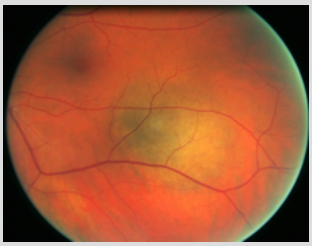
151

No Drusen, No halo



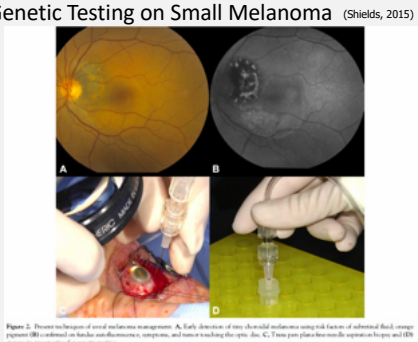
152

No Drusen, no Halo

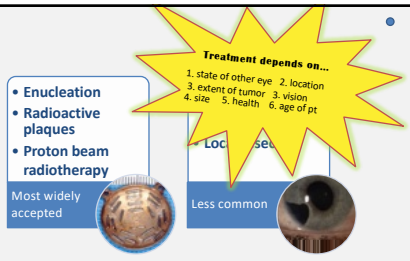


153

Genetic Testing on Small Melanoma (Shields, 2015)



154

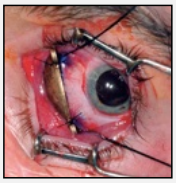


Treatment & Management

155

Brachytherapy for Uveal Melanoma

- Plaque left in place for 4 days to provide 8,000 centigray of radiation to entire tumor.
- The remainder of the body receives a small amount of radiation, about the equivalent of a chest x-ray.

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Treatment Side Effects

- Main side effect of focal ocular treatment is…
  - Radiation retinopathy!

  - NVD / NVE
  - Exudative changes
  - Macular edema
  - Occurs several weeks to months after therapy

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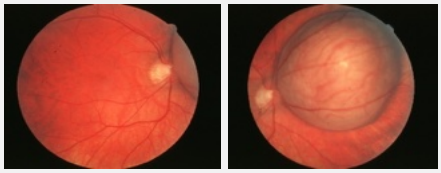
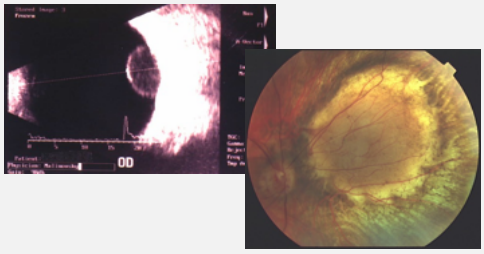
Choroidal melanoma- pre-Radiotherapy



Acknowledgement: Brad Sutton, OD

158

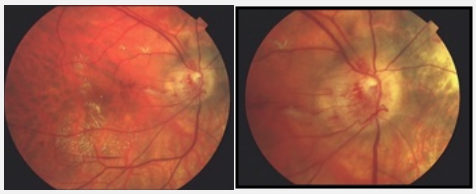
Melanoma pre-Tx echography (left), post-radiotherapy (right)



159

Radiation Retinopathy: exudate, NVD

Acknowledgement: Brad Sutton, OD



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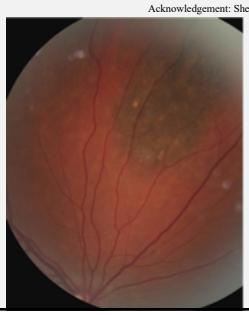
Choroidal Melanoma Pre-Tx

Acknowledgement: Sherrol Reynolds, OD, FAAO



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S/P Radiotherapy

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Management of RR

- Avastin/Lucentis/Eylea
- Laser
- Silicone oil at time of Brachytherapy
  - attenuates radiation dose, may protect against RR

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Questions and Answers

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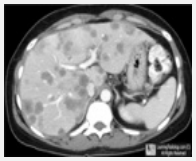
Melanoma Metastasis

Risk factors for metastasis from the choroid:

- Thickness > 2 mm
- Symptoms – Flashes, floaters, loss of vision
- Proximity to the optic nerve
- Documented growth



Shields CI Shields JA. Risk factors for metastasis of small choriodal melanocytic Lesions. Ophthalmology 1995

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METASTASIS

BOX 48.1 Sites for Metastatic Uveal Melanoma

- Liver 93%
- Lungs 24%
- Bone 16%
- Skin 11%
- Lymph nodes 10%
- Brain 5%
- Fellow eye 0%

Multiple sites involved in about half the cases.
In an atypical case consider a second primary tumor.

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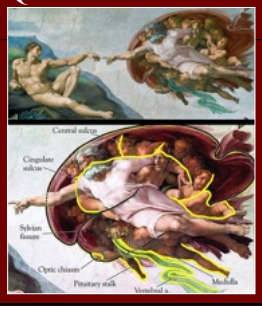
Questions & Answers



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Key Clinical Takeaways

- Optometrist frequently encounter oculo-systemic diseases and various “pandemics”.
- Clinicians must be aware of not only the ophthalmic manifestations, but also the possible consequences of treatment.

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Conclusion

- The eye does not exist in isolation, but is a mirror of systemic health.

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Thank you!

Joe

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