

CAN MY MEDICATIONS CAUSE VISION PROBLEMS?

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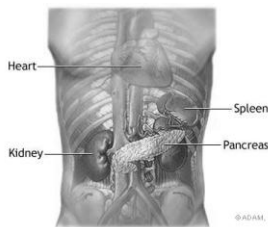


YES ABSOLUTELY!!

- ❖ It's very important for people to be aware of **what conditions** they have, **what medications** they're taking and **how** these meds may increase the risk of certain vision problems.

WHAT'S THE DANGER?

Every med. has an effect on **Multiple Organs**



WHAT'S THE DANGER?

- 70 % of Americans are on at least **ONE** prescription drug
- 50 % take at least **TWO** prescriptions
- 20 % take at least **FIVE** prescriptions



WHAT'S THE DANGER?

- The most commonly prescribed drugs are:
 - Antibiotics -- taken by **17 %** of Americans
 - Antidepressants -- **13 %** of Americans
 - Opioids (Pain) -- **13 %** of Americans.
- Followed by:
 - HBP -- **11%**
 - Vaccines -- **11%**

CHRONIC CONDITION OR OTHER?

- Chronic Condition
 - Heart Disease/ Diabetes/Arthritis
- Depression
 - Nearly **20 %** of **women** ages **50 to 64**
 - **13 %** of the **overall population** were found to be on **antidepressants**
- Pain
 - Opioids – High addiction rate (WVA and KY two of highest)

MEDS BY AGE

- Younger than 19
 - Vaccines
 - Antibiotic
 - Anti-Asthma
- Middle Age
 - Antidepressant
 - Opioids
- Older
 - Cardiovascular



COURSE OBJECTIVES...

- What are the most common Systemic meds. that cause Visual side effects?
- What are the specific Visual side effects?
- How to minimize visual loss while taking these meds?

ROLE OF OPTOMETRIC ASSISTANT

Must be familiar with common systemic meds and their associated visual side effects

- Transient
- Mild
- Moderate
- Severe
- Vision Loss

THE EFFECT OF SIDE EFFECTS

Over half of Americans have stopped or wanted to stop taking a medication due to side effects.

52%

have stopped or wanted to stop taking a medication due to side effects.



ROLE OF OPTOMETRIC ASSISTANT

It ALL begins with the CASE HISTORY!!

- A careful and detailed Case Hx. is critical to revealing the patients Medication Hx.
 - Can often identify the problem even before any testing is completed
 - MU 2 Rx requirements-complete list from physician

CASE HISTORY

- Chief Complaint/RFV
- Visual and Ocular history
- General Health history
- ALL** Medications
- Allergies to medications
- Family Eye and Medical histories



1 ACNE MEDICATIONS (ISORETINOIN)

Brand names

- > Acutane
- > Amnesteem
- > Claravis
- > Sotret

ACNE MEDICATIONS

Uses:






- Treatment of **severe** acne that **hasn't responded to other treatments**

Initial SCIENTIFIC Treatments

- Benzoyl Peroxide** - Kills Acne **bacteria**
- Salicylic Acid** - Unclogs **Pores**
- Glycolic Acid** -Renews **Skin**
- Sulfur** - Dries **Sebum**
- Azelaic Acid** - Normalizes **Skin**

OTC OPTIONS

NATURAL ALTERNATIVES

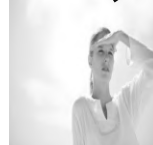
- Green Tea** - Kills Acne **Bacteria** 
- Passion Flower** - Reduces inflammation 
- Aloe Vera** - Soothes Irritated Skin 
- Sage Extract** - Fights Free Radicals 
- Gotu Kola** - Improves Skin Healing 

VISUAL SIDE EFFECTS

- Dry Eyes- mild to severe
- Decreased CL tolerance
- Blepharoconjunctivitis
- Keratitis
- Photophobia
- Increase in hordeolum and chalazion frequency
- Corneal opacities



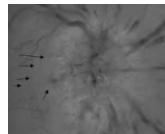
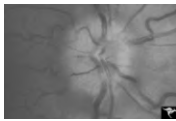
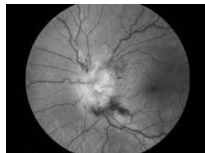
VISUAL SIDE EFFECTS



- Headache
- Transient blurred vision
- Sudden decrease in night vision
- Subjective visual obscurations
- Photosensitivity
- Tinnitus
- Papilledema

PAPILLEDEMA

- Swelling of Optic Nerve caused by increase in intracranial pressure
- Usually Bilateral



PAPILLEDEMA

Symptoms

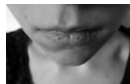
- None early on
- Headache
- Enlargement of the blind spot
- Blurred vision
- Total loss of vision may ultimately occur

Signs

- Venous engorgement
- Loss of venous pulsation
- Hemorrhages over and adjacent to the optic disc
- Blurring of optic margins
- Elevation of optic disc
- Paton's lines = radial retinal lines cascading from the optic disc

OTHER SIDE EFFECTS

- Chapped lips (90%)
- Dry and itchy skin (80%)
- Dryness of nose/nosebleeds (80%)
- Irritation of eyes and eyelids (40%)
- Joint and muscle pain (15%)




PREVENTION

- ❑ Comprehensive Case History
- ❑ Discussion and review of ALL meds
- ❑ 6 month Office Visit while taking meds
- ❑ Annual Comprehensive Vision Exams

#2

ANTIHISTAMINES



- Claritin
- Zyrtec
- Allegra
- Benadryl
- Sudafed

#2

ANTIHISTAMINES

Uses:


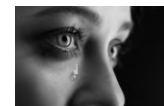
- Relieves hay fever and allergy symptoms
- Reduces inflammation due to allergic reactions

Mechanism of Action:

- Blocks the histamines that are produced by the body that cause runny nose, watery eyes, sneezing, itching and inflammation due to allergic rxn. or the common cold

VISUAL SIDE EFFECTS

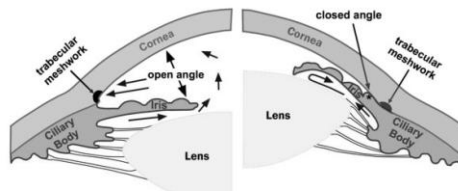
- Dry eyes
- Mydriasis
- Blurred vision due to the loss of accommodation
- Lacrimation

VISUAL SIDE EFFECTS



- Angle Closure Glaucoma (Ocular Emergency)
 - **Rapid** increase in ocular pressure
 - Ocular and Systemic symptoms
 - Headache
 - Severe eye pain
 - Nausea and vomiting
 - Blurred vision
 - Seeing halos around lights

Anatomy and Physiology of Acute Angle Closure Glaucoma



OTHER SIDE EFFECTS

- Dry mouth
- Drowsiness
- Dizziness
- Nausea/Vomiting
- Restlessness or moodiness (in some children)
- Blurred vision
- Confusion
- Trouble urinating





PREVENTION

- ❑ Avoid mydriatics (pupil dilating agents)
- ❑ Avoid Anticholinergics and Antispasmodics
 - Asthma and COPD meds
 - Scopolamine patches used for dizziness and sea sickness
 - Drugs that calm diarrhea and muscle spasms in people with GI problems
- ❑ Annual comprehensive vision exams


#3 ANTIMALARIALS

- Plaquenil (Hydroxychloroquine)
- Quineprox
- Aralen (Chloroquine)



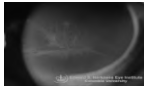
Uses:

- Rheumatoid arthritis
- Lupus Erythematosus
- Sjogren's Syndrome
- Prevention of and treatment for Malaria
(Parasitic disease kills 2.7 million people annually)




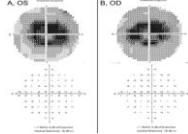
VISUAL SIDE EFFECTS

- Keratopathy



- Retinal toxicity leading to permanent and irreversible vision loss (Dose related toxicity)
 - Bilateral Pigmentary Retinopathy
 - Asymptomatic early on


BULL'S EYE MACULOPATHY

- Later - Bull's eye maculopathy accompanied by paracentral and central scotomas
- End stage - Widespread RPE and retinal atrophy with a loss of central vision, peripheral vision, and night vision

OTHER SIDE EFFECTS

- GI problems
- Skin changes
- CNS involvement
- Neuromuscular toxicity
- Cardiac toxicity



PREVENTION

- ❑ Baseline vision exam prior to treatment
 - SLE Q 6 months
 - 10-2 Humphrey Visual Field
 - Macular OCT
 - Fundus autofluorescence (Optomap Daytona)
- ❑ Annual comprehensive vision exams repeating the above tests

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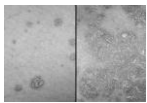
CORTICOSTEROIDS

- Prednisone
- Cortisone
- Dexamethasone
- Hydrocortisone



Primary Uses:

- Systemic inflammatory conditions...arthritis, lupus, psoriasis
- Severe allergies, asthma, breathing disorders, bronchitis, ulcerative colitis
- Ocular conditions...Contact dermatitis, Acute Allergic rxn, Anterior uveitis



VISUAL SIDE EFFECTS

- Posterior Subcapsular Cataracts
- Elevated IOP
- Glaucoma
- Decreased vision
- Mydriasis
- Photophobia

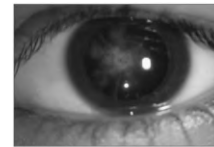


Figure 3: Posterior subcapsular cataract of left eye

VISUAL SIDE EFFECTS



OTHER SIDE EFFECTS

- Adrenal Insufficiency- decreased ability to respond to physical stress (Fight or Flight)
- Immunosuppression- Can't fight off infections
- Steroid Withdrawal Syndrome– could result in fatigue, joint pain, muscle stiffness, muscle tenderness, fever and Flu-like symptoms

OTHER SIDE EFFECTS

- Gastrointestinal Ulcers or Bleeding
- Osteoporosis
- Weight gain
- Insomnia
- Mood Changes
- Fluid Retention
- Elevated BP
- Elevated Blood Sugar:



PREVENTION

- ❑ Comprehensive Eye exam immediately after start steroids for SLE and IOP check
- ❑ Monitor IOP Q 3 months
- ❑ Call if develop eye pain, halos around lights or blurred vision
- ❑ Annual Comprehensive Vision Exam

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ERECTILE DYSFUNCTION MEDS

- Viagra
- Cialis
- Levitra

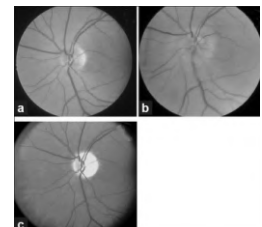


VISUAL SIDE EFFECTS

- Seeing a temporary **blue tinge** to objects
- Blurred Vision
- Sensitivity to light
- Conjunctival Hyperemia
- Sudden vision loss (advertised on commercial)
- Non Arteritic Ischemic Optic Neuropathy

NON ARTERITIC ISCHEMIC OPTIC NEUROPATHY -NAION

- NAION is an ischemic insult to the optic nerve
 - Acute
 - Monocular
 - Painless
 - Visual Loss
 - Optic disc swelling
 - Pallor of the Optic Nerve



OTHER SIDE EFFECTS

- Headache
- Stuffy nose
- Facial Flushing
- Dizziness
- Lightheadedness.



PREVENTION

- Comprehensive Case History
- Discussion and review of ALL meds
- Call if notice any vision changes
- Annual Comprehensive Vision Exams

6

ETHAMBUTOL

Myambutol



Uses:

- Antibiotic used to treat tuberculosis (TB)

VISUAL SIDE EFFECTS

- Decrease in visual acuity/clarity
- Difficulty seeing certain colors
- **Toxic Optic Neuropathy**



TOXIC OPTIC NEUROPATHY

Visual symptoms generally appear between
4 months to a year after taking meds:
(Dose Dependant)

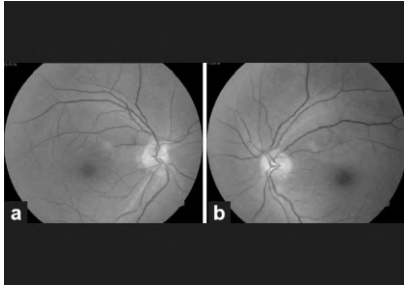
- Mild Unilateral Dimness of vision initially
- Painless Visual Loss
- Bilateral vision loss no worse than 20/200

TOXIC OPTIC NEUROPATHY

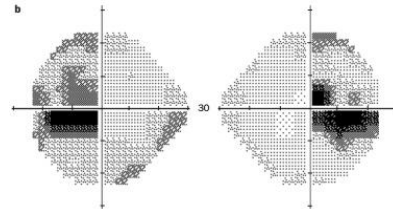


- Pupils are **bilaterally sluggish** to light
- Always **R/G or B/Y** defect
- Normal-appearing optic nerves initially making early diagnosis a challenge
- Visible Optic Atrophy develops later

TOXIC OPTIC NEUROPATHY



TOXICOPTIC NEUROPATHY



Papillomacular bundle damage with Central or Ceco-central Scotoma

OTHER SIDE EFFECTS



- Headache
- Loss of appetite
- Upset stomach
- Nausea
- Vomiting

PREVENTION

- Baseline Vision Exam
- Color Vision testing
- Amsler Grid
- Visual field testing
- OCT
- Call if vision or color vision changes
- Annual Comprehensive Vision Exams

7 FLOMAX

Uses:

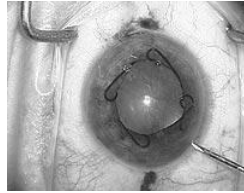
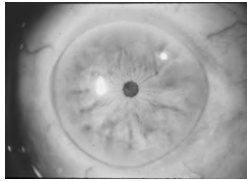
- Treatment of Benign Prostatic Hyperplasia
 - Minimizes pain during urination in men with enlarged prostates
 - Work by relaxing bladder and prostate muscles

VISUAL SIDE EFFECTS

- Medication builds up in the iris preventing pupil from being able to dilate
- Intra-Operative Floppy Iris Syndrome - cataract surgery
- Incidence of IFIS with the use of flomax is **43% to 63%** while prevalence in general population is only 1-2%

IFIS

Miotic Pupils



Iris clips

OTHER SIDE EFFECTS

- Headache - 4% to 20%
- Dizziness - 5% to 15%
- Back or chest pains - 4% to 8%
- Diarrhea - 5%
- Nausea and vomiting - 3%
- Flu-like syndrome or infection - 2%



PREVENTION

- Men considering cataract surgery
MUST make cataract surgeon aware
- Annual vision exams



#8

PHENOTHIAZINES

Thorazine
Mellaril



Uses:

- Antipsychotic used to treat schizophrenia and other severe mental/emotional illness
- Used to treat nausea and vomiting
- Severe hiccups

VISUAL SIDE EFFECTS

- Sensitivity to light
- Color vision changes
- Difficulty with night
- Pigment changes on the lens



OTHER SIDE EFFECTS

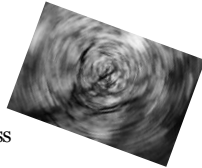
- Inability to move eyes
- Constipation - Mild
- Drowsiness
- Dry mouth



OTHER SIDE EFFECTS



- Dizziness
- Lightheadedness
- Decreased sweating
- Nasal congestion



PREVENTION

- Take LOWEST dose possible
- Avoid long term use
- If any symptoms persist or worsen, notify your doctor
- Annual comprehensive eye exams

#9 TAMOXIFEN

Soltamox
Nolvadex



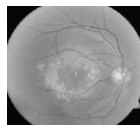
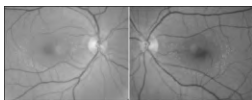
Uses:

- Anti-estrogen drug used to treat breast cancer

VISUAL SIDE EFFECTS

- Blurred Vision
- Sub-epithelial corneal opacities
- Increased risk of Cataracts
- Crystalline Retinopathy

Crystalline Retinopathy



- Initially asymptomatic
- Decrease in vision
- Dyschromatopsia
- Dose dependent - >120mg BID

OTHER SIDE EFFECTS

- Irregular periods
- Hot flashes
- Nausea/Vomiting
- Noisy or rattling breathing
- Redness of the face, neck, arms or occasionally, upper chest



OTHER SIDE EFFECTS

- Skin changes
- Swelling of the fingers, hands, feet, or lower legs
- Troubled breathing at rest
- Weight gain or loss



PREVENTION

- Baseline Comprehensive Vision Exam
- Report any visual or systemic side effects to your doc
- Annual Comprehensive Vision Exams

#10

TOPIRAMATE

Topamax

Uses:

- Anti-convulsant used to treat seizure disorders
- Prevention of migraine headaches
- Treatment of Bipolar Disorder, OCD and PTSD
- Weight loss in Obesity
- Treatment for Pseudo-tumor Cerebri



VISUAL SIDE EFFECTS

Angle-Closure Glaucoma

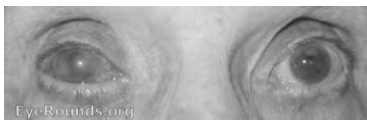
(Medical Emergency)

➤ **Rapid** increase in IOP due to:

- Swelling of the Ciliary Body
- Closing of the Angle between the Iris and Cornea

ANGLE-CLOSURE GLAUCOMA

- Severe peri-ocular pain
- Photophobia
- Circum-limbal hyperemia
- Corneal edema
- Non-responsive pupil



ANGLE-CLOSURE GLAUCOMA

- Extreme Headache
- Blurred or double vision
- Nausea and vomiting
- Seeing halos or rainbows around lights

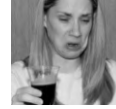


OTHER VISUAL SIDE EFFECTS

- Blurred Vision
- Visual Disturbances
- Peri-orbital pain
- Visual Field Defects (April 2014)

OTHER SIDE EFFECTS

- Paresthesia- numbness and tingling
- Fatigue
- Taste change
- Weight loss
- Difficulty with concentration/attention/memory



PREVENTION

- Baseline Comprehensive Vision Exam
- Report any visual or systemic side effects to your doc
- Annual Comprehensive Vision Exams

THANK YOU!!!

Any ????

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