Primary Care, Ocular Disease, and Pharmacology

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My disclosures

Dr. Gupta is not a member of any speakers bureau nor does he get paid by any pharmaceutical or ophthalmic instrument company mentioned in the lecture

What's your diagnosis?

- Ocular hypertension
- Glaucoma Suspect
- Glaucoma
- Physiological cupping

If follow

- How often do we follow?
- Is this person a glaucoma suspect for life or can we stop the work up at some point?

If treat…

- What do we treat with?
- Is this patient on glaucoma meds for life now?

Juvenile Glaucoma

- Develops age 3 and higher
- Rare: 1 in 50,000
- ADULTS: 1,000 in 50,000

Overall Prognosis good

- 80-90% achieve good IOP control
- 83% require surgical intervention to control IOP but medications may be tried first

IOP in kids

- Under 8 at 3 months
- Under 12 between 6 to 9 months
- Then increase 1 mm/year
- Reaches “normal range” around age 12

What is normal C/D ratio in children?

- .30
- 90% of the normal population falls between 0.2 to 0.5 with a greater variability than the adult population

Ocular Hypertension vs glaucoma suspect

- OHTN: Elevated IOP and everything else is normal
- Glaucoma Suspect – patient is at higher risk for developing glaucoma than the average person based on a variety of factors

Physio cupping vs glaucoma suspect

- First: rule out glaucoma before you jump to the conclusion of physiological cupping
- Second: physio cupping is only confirmed after years and years of a stable ONH
- Lastly: In terms of liability, there is no such thing as physiological cupping!

Your patient…

- Comes in to your office complaining of ocular migraine x 3 days.
- Last had 6 years ago
- VA 20/20 OD and OS

- MH: HTN uncontrolled x 6 years
- Entrance exams normal
- IOP: 15, 16
- Dilated fundus exam normal

Ophthalmic Migraines

- Scintillating scotoma or “aura” lasting 20-30 min
- Can occur with or without headache
- Diagnosis made by patient complaint and dilated exam to rule out other conditions

Ophthalmic Migraines

- Treatment: None
- If occurring frequently, refer to PMD for migraine work up.
- Studies show medications used for migraine headaches can also decrease frequency of ophthalmic migraines

On way out…

- He almost passes out in waiting room
- Vasovagal?
- What else could it be?

What is vasovagal?

- Occurs when you faint because your body overreacts to certain triggers, such as the sight of blood or extreme emotional distress. It may also be called neurocardiogenic syncope.
- What happens: heart rate and blood pressure drop suddenly. That leads to reduced blood flow to your brain, causing you to briefly lose consciousness.

Vasovagal?

Short term: What is your role? Make sure patient doesn’t get hurt.

Long term: Do you send this patient for work-up with PMD?

What is normal BP?

- Systolic = 120 mm Hg
- Diastolic = 80 mm Hg

Risk factors for Hypertension

Age

Positive family history

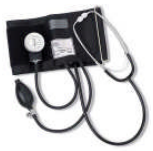
Over weight

Kidney disease, diabetes

High sodium diet

Diagnosis of Hypertension

- Repeated abnormal elevation of BP on 3 separate occasions over at least 6 weeks
- A single blood pressure > 200/120



Cause of Hypertension

- Primary (“essential”) 95% of cases
- Secondary 5% of cases, most common of which is kidney disease

Treatment of Hypertension

- Diet – low salt
- Exercise – reduce weight
- Medications

How does sodium inc BP?

- Causes water retention which increases peripheral resistance which makes the heart work harder to pump blood

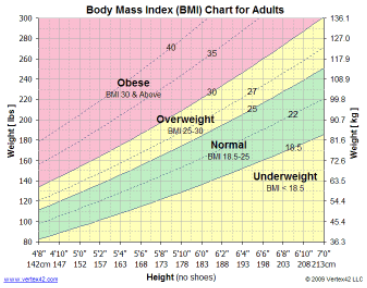
What is normal sodium intake?

- 2300 mg per day for normal, healthy person
- 1500 for patient with high blood pressure or person in high-risk category

How much sodium does the average person take in per day?

- 3400 mg
- Why so high? So many products use sodium as a preservative

Lose Weight



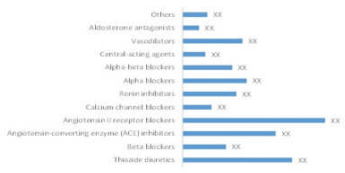
Calculate Body Mass Index

$$BMI = \frac{\text{weightInPounds x 703}}{\text{heightInInches x heightInInches}}$$

Or

$$BMI = \frac{\text{weightInKilograms}}{\text{heightInMeters x heightInMeters}}$$

Drug classes to manage HTN



Ocular Manifestions of HTN

- Vessel changes/AV nicking
- Retinal hemorrhages
- Papilledema

Why does it matter to ODs?

- We are a part of a patient's healthcare team so we should have a working knowledge of conditions beyond the eye
- Many ODs are checking blood pressure in the office

How many people have AMD?

- 2.1 million in U.S. = leading cause of blindess
- 10.8 million worldwide

Does race play a role in AMD development?

Does sex play a role in AMD?

At what age does the risk for AMD increase significantly?

How do we diagnose and monitor AMD?

- **Clinical Symptoms**
- **Amsler Grid**
- **OCT**
- **Visual Field**
- **Fundus Photography**

- UV protected sunglasses
- Vitamins
- Stop smoking
- Green, leafy vegetables
- Increase exercise

Why does it matter?

- 1.3 million people legally blind (BCVA >20/200)
- 4.2 million people visually impaired (BCVA > 20/40)

Other things we can do

- Low Vision consult
- Register for legally blind, if applicable

When do we send a patient for surgery?

- When a patient wants it and we can't talk him/her out of it
- When they NEED it
- When there is no other choice

Treatment Options

- Prevention
- Patient deals with it
- Surgery

Prevention

- UV glasses may delay onset
- Nutrition
- Ultimately, it is a losing battle

Patient deals with it

- No hurry to send a patient out for cataract surgery

The Way it is now

- The trend is smaller incisions
- Stitch-less
- Blade-less
- The entire procedure takes 10-12 minutes

How many people have cataracts?

Estimated 29 million
Roughly 10% of the population

How many cataract surgeries are performed a year?

3.6 million

Cataract Surgery is Your Old Man's LASIK

IOLs: What are the options?

- Traditional distance only IOLs
- Toric IOL
- Multifocal IOL

Monofocal Toric Bifocal

Traditional Distance Only IOL

- Great for distance – offer the crispest vision for driving, etc
- If the patient chooses 20/20 uncorrected for distance, the patient is dependent on glasses for reading, computer, and other near tasks FOREVER

Mini Monovision vs Multifocal

- Undercorrect non dominant eye by 1.25 D
- ??? Works better than multifocal IOLs

Astigmatic Patients and Toric IOLs

- Patients with *regular* corneal astigmatism
- Patients with cyl < 2.25 D
- Patients will to pay the additional money insurance will not cover

Who is a Multifocal Candidate?

- **Bilateral implantation candidates**
- **Patients with normal pupils**
- **Patients who do not have other limitations to achieving 20/20 vision**

Who is a Multifocal Candidate?

Patients who can accept less than perfect vision

Patients who are willing to pay for non-covered services

Limitations

- Image quality limited
- Sharpness reduced
- Haloes and glare
- Decrease vision in dim light

What about patients who are astigmatic who want multifocal IOLs?

Restor IOL now available as toric multifocal

- **They are still YOUR patient**
- **If you have this discussion, the patient will have time to process the information when the MD discusses with them again**

What is the success rate of cataract surgery?

96 to 98%

Post Op
When Things Go Wrong

What do to when this happens

MAKE A DECISION:

- Take care of it yourself
- Send it back to the surgeon

Elevated IOP

Why does this happen?

- Viscoelastic substance is injected into the eye during surgery which raises IOP and sometimes doesn't drain quickly
- Steroid use during post op period

Management

- Do Nothing
- "Burp" it
- Diamox 250 mg x 2 for a couple of days
- Topical beta blockers or Alphagan - what about Prostaglandins?

Wound Leak

Why does this happen?

- Surgeons don't use stitches any more
- Some use glue, many use nothing

Management

- Small - Do nothing
- Medium - Bandage contact lens
- Large - Stitch

Complications

Post Capsular Opacity

PC Haze

Post Capsular Opacity

- Impacts Bifocal IOL greater than traditional IOLs

Complications

CME

- **Even sub-clinical CME may compromise a patient's vision immediately after post-op**

Management

- Order OCT, if available
- Share the liability with surgeon and/or retinal specialist
- Most common treatment is topical steroids and topical NSAIDs

If you are seeing a lot of these post-op complications…

You are sending to the wrong MD

Corneal Abrasion

- What if the abrasion is central, how does your management change?

For central abrasions

- You can send to MD – the only advantage is that he/she will share in the liability if this goes bad
- Or, you and instill loading dose of topical antibiotics and then Rx both the antibiotic and topical steroid

My protocol for central abrasions

- Instill antibiotic drop q 5 min for 30 min while patient is still in office
- Then I send patient home with:
  - Hourly topical antibiotics
  - TID topical steroid
  - Cycloplegic agent
  - Antibiotic ung QHS
  - Patient ed: about possible loss of BCVA
  - RTO 24 hours follow up

Patient was doing great, but then the patient complained of increased pain again

Patient may have RCE

Management

- ST: Treat corneal abrasion again
- LT: What are your options?

Muro 128

Bandage CL

Other options for RCE

Superficial keratectomy

PTK

Anterior Stromal Puncture

Amniotic Membranes

Other options for RCE

- Oral tetracyclines (Doxycycline)

For this patient…

Successfully treated (ST and LT)

No more outbreaks of the RCE

Before Prescribing Anything…

- **Take a thorough medical history**

- **HPI and ROS**
- **Current Medications**
- **Allergies**
- **Pregnancy/Nursing**

Ask every female patient

- Are you pregnant?

- If has infant, are you nursing?

FDA Pregnancy Categories

A - Controlled studies demonstrate no risk

B - No evidence in risk in humans. Either animal studies show risk and humans do not OR if no human studies, animal studies negative

C - Risk cannot be ruled out. Human studies lacking but animal studies are positive for fetal risk or lacking

D - Positive Evidence of risk
Investigational or post-marketing data show risk to fetus. If needed in life-threatening situation or serious situation or serious disease, drug may be acceptable

X –Contraindicated in pregnancy
Fetal risk clearly outweighs any benefit to patient

Pregnancy Categories

- Always prescribe with caution in women who are pregnant, nursing, or women who may become pregnant

- If in doubt, consult their Ob/Gyn

Commonly Prescribed Drugs

- Zymar – C
- Zylet – C
- Alrex – C
- Lotemax – C
- Tobradex -C
- Restasis – C
- Patanol – C
- Elestat – C
- Vigamox - C

- Erythromycin – B
- Tobramycin – B

- Doxycycline – D
- Tetracycline – D
- Neomycin -- D

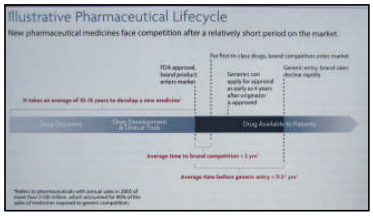
Pediatric Use of Ocular Medication

Medication	Approved for use
Allergy Medications	
Acular	≥ 3 yrs
Alamast	≥ 3 yrs
Optivar	≥ 3 yrs
Zaditor	≥ 3 yrs
Patanol	≥ 3 yrs
Opticrom	≥ 4 yrs
Alomide	≥ 2 yrs
Crolom	≥ 4 yrs
Antiviral	
Viroptic	≥ 6 yrs
Combination	
Tobradex	≥ 2 yrs
Zylet	> 2 yrs

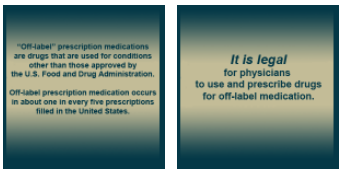
Medication	Approved for use
Antibiotics	
Polytrim	≥ 2 yrs
10% Sulfacetamide	≥ 2 mos
Erythromycin	≥ 2 mos
Tobrex	≥ 2 mos
Ciloxan oint	≥ 2 yrs
Ocuflox	≥ 1 yr
Zymar	≥ 1 yr
Vigamox	≥ 1 yr
Quixin	≥ 1 yr
Anti-inflammatory	
Fluorometholone	≥ 2 yrs

What is the difference in criteria for FDA approval for generic vs name brand medications?

The approval process for branded drugs



Define off label



Commonly Used Off-Label Drugs in Optometry

- Allergy drops for GPC
- Antibiotic drops for corneal abrasions
- 4th generation fluoroquinolones for corneal ulcers
- Lotemax for Allergies
- Alrex for Dry Eyes
- Travatan Z for 1st line Glaucoma therapy

In any given year, 99.9 percent of us are practicing good optometry….

Lifetime Risk for Getting Sued

6%

- Medical negligence
  - Failure to meet the standard of practice of an average qualified physician practicing in the specialty in question

❖*Occurs not merely when there is an error, but when the degree of error exceeds the accepted norm*

What is standard of care?

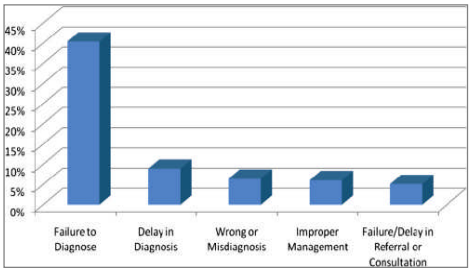
- the watchfulness, attention, caution and prudence that most doctors in the circumstances would exercise.

Which state has the highest number of optometric malpractice claims?

5 Steps of the legal elements of a Negligence Claim

- A Physician-Patient Relationship
- The Provider Owes a Duty (of reasonable care) to the Patient
- The Physician's conduct was below acceptable Standards of Care
- The Patient was injured (damages)
- The Negligence was the "Proximate Cause" of the patient's damages.

What is the most common reason optometrists get sued?



Take Care of Your Patients

Solution

- Quite worrying if your patient is here on vision plan or medical
- Recommendation should always be to dilate

Diagnosing RD

- Dilate any new onset flashes, floaters, any high myope
- Extended ophthalmoscopy AND follow up ophthalmoscopy in 4-6 weeks
- Patient education on signs and symptoms of RD

Do your due diligence

- Make the appointment while the patient is still there
- Follow up on all missed appointments, etc

Diagnosing Glaucoma

- Work up those with a higher risk than average not those who you think have glaucoma
- Just because you don't have the instruments for it doesn't mean that it doesn't need to be done

Explain R & B

- You should discuss and document the risks and benefits of nearly every assessment/plan you have for your patient

- Don't develop tunnel vision
  - You are driven by the expectation that your initial diagnosis was correct, you only consider findings that prove you right
  - The finds should fit the diagnosis; if they don't go back and re-think the diagnosis

Special Populations

- Always try to have a family member for children and the elderly. Document who was there
- If patient doesn't speak English, have them bring a translator
- Always prescribe with caution in pregnant women and/or women who are nursing

Take Care of Yourself

A.K.A. How to make more money

Increase Patient Flow

- You have a choice:
- 1. See more patients per day for the cheap vision exams
- 2. See less patients per day for the higher reimbursing medical plans

Medical Optomery

- Medical reimbursements are higher than vision plans
- You can see patients for follow ups as often as needed
- This should be in addition to glasses, contacts, and the "yearly" eye exam

What if your patient is here due to a vision plan but you need to do additional testing

Option 1

- Tell your patients about findings and convert exam into medical
- Patient can still use vision plan for materials but ALL exam procedures are billed to medical

Option 2

- Keep today as vision plan. Do no ancillary procedures and have patient return for comprehensive medical work up

Option 3 (less ideal)

- Bill exam and materials to vision plan and ancillary procedures to medical plan

Option 4 – Not an option!

- What you do NOT do EVER!!!!
- Patient is here under vision plan so you ignore it.
- Just because you don't have the equipment does not mean the patient does not need it

Stop leaving money on the table

- Decrease CL dropouts
- Increase follow up for anterior segment disease
- Little changes make a big difference!

Get your millions back !!!!

- Number of annual patients 3000
- % who wear contact lenses: 20%
- Number of CL patients = 600
- Number of CL droputs (16%) = 96
- Revenue lost from dropouts: $275 * 96 = $26,400

If you work for 40 years, the lost income is over $1 million dollars

- Lifetime loss of revenue = $26,400 x 40 years = $1.056 million

Incidence and prevalence of …

- Ocular allergies 25%
- Dry Eyes 31%
- Ocular infections 10%
- Ocular trauma 6%

- The key is to see these patients for a follow up and bill for it

Do the Math

25% of population has Dry Eyes/Allergies

Average OD sees 16 patients a day --- 4 have DES, another 2 have allergies

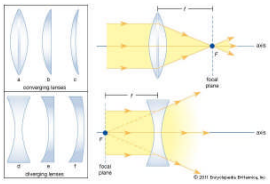
If you see 3 for follow up @$50/visit

You will make $150 per day, $750 a week, and $35,000 a year if you work 46 weeks

Lifetime: 40 years work: Another million lost!

Where we were

- We started out as opticians whose only concern was optics and glasses



Where we were

Where we are now

- We are primary care optometrists
- We can do exams and fit contact lenses
- We can handle ocular disease

Where we are now

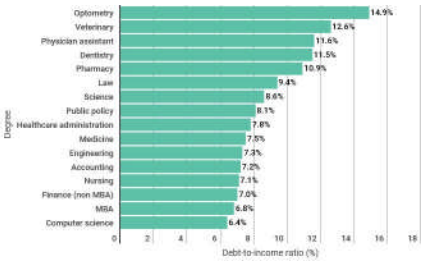
In some states we can do surgery

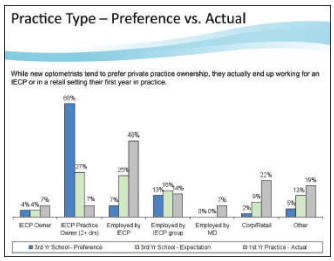
In some states we have hospital privileges

Decline of private practice ODs

- Many new graduates are coming out of school and are unwilling or unable to handle private practice

We have the worse debt to income ratio





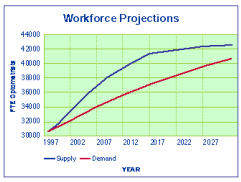
Why the decline?

Chains are buying retired OD practices

OMDs are absorbing OD practices

The few that are left is what will be left of private practice optometry

Oversupply of ODs?



Where we are headed

- With over 300 million people in the U.S. we have plenty of supply to keep our profession going
- However, the general trend is an increase in retailers vs private practice ODs