Challenging cases:
Is this really an emergency?

Brian P. Mahoney, OD
VAMC
Wilmington, DE

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SOME QUESTIONS TO BE ANSWERED

• Should patients wash their hands before seeing us?
• Can diabetics lose vision from eating dessert?
• Will missing glaucoma drops once a week cause vision loss?
• Can using pimple cream cause vision loss?

Question 1:
Should patients wash their hands before seeing us?

Case 1:

BM is a 57 yo WM in for emergency visit. He states he noticed a hemorrhage in his OS when washing his hands after moving his bowels in the bathroom.

Case 1:

PMH: Type 2 DM x 1 year c 6.2 A1c
HT x 10 yrs c good control
(127/76 that morning)
HL x 8 yrs on statin med
CAD s/p bypass 2 years ago
on 81mg ASA daily in addition
to fish oil
Obesity
Sleep Apnea
Nonsmoker
Case 1:

Last eye exam 5 mos ago with no vision change since that time. He has been using lubricant drops PRN for dry eye with relief.

Entering VA 20/20 OD/OS
Externals no APD
SLE

dry eye with lower lid laxity hemorrhage OS

Case 1: Hyphema

What Is happening?

Diabetic: but no retinopathy
No active or compensated RVO evident
Top 3 Causes of NVI

*Ocular Ischemia*
- Proliferative diabetic retinopathy
- Retinal vein occlusion
- Ocular ischemic syndrome

Ocular Ischemic Syndrome (OIS)
- >90% carotid occlusion
- M>F over age 50 (greatest over 60)
- Usually presents unilaterally
- 25% of patients with OIS have previous CVA

Symptoms:
- 10% have no symptoms
- Vision loss in 90% of patients
- Ocular angina in 40% of patients
- Amuorsis seen in 10% of patients
- Delayed light and dark adaptation

Clinical Findings of OIS

**Anterior Segment:**
- Sluggish pupillary responses
- Neovascularization
- NV/NVA 67%
- NVG 33%
- AC flare 18% (Pseudo-limbus)
- Relative hypotony

**Posterior Segment**
- Asymmetric retinopathy
- Blot hemis
- At the equatorial region and beyond
- NVD/NVE rarely


Pertinence to Case 1

No carotid bruit
No NVA on gonioscopy
IOP’s were 15 OD and 16 OS
Same day carotid ultrasound and MRA (1 week later)
93% R stenosis
97% L stenosis

Case 1: Outcome of Patient WM

Patient referred for:
- Evaluation carotid surgery
  (performed L in 1 week followed by the R side)
- Bilateral PRP (over 2 weeks)

Clinical findings on eye:
- Hyphema resolved in 2 days
- Regression in the NVI by 1 mo
- IOP elevation of 2 OD and 3 OS
  (s/p endarterectomy)

Question 1:
Should patients wash their hands before seeing us?

Answer:
It may be helpful to save your life and decrease the spread of germs!
Question 2

Does eating dessert cause vision loss?

Case 2

CK is a 55 yo WM presenting for emergency visit with a complaint of sudden change in vision loss OS since the previous day. He states he has been treated for DM x 5 yrs and has been eating desserts frequently for the past few months. He was last seen 4 mos ago for his glaucoma evaluation.

Case 2: Medical history

PMH:
DM x 5 yrs A1c 6.7 and av BS at home 122
Colon cancer dx in 2009 and ongoing chemotherapy
Anemia from chemo
HTN on meds 124/82
HL on meds with good control

Case 2

PMH:
DM x 5 yrs
Colon cancer dx in 2009 and ongoing chemotherapy
Severe anemia from chemo

POH:
OAG dx and tx OD since 2010 and at last visit
Severe NPDR 1/2010 and at last exam 5 mos ago

Case 2: Clinical findings

BVA 20/20 OD/OS .65/.7 vessel barring 12 and 6 respects ISNT
P3/4RRL (-) APD .45/.5 ASNI No DME
SLE: pinguecula no NVI
TA 11 OD
14 OS
3 clock hours of AR OD
VH OS>OD
Do I expect severe NPDR OU to progress bilaterally to PDR with VH in 4 mos?

Is there anything in the medical history to explain the rapid progression of retinopathy?

Case 2: Lab findings in past year

- DM: A1c 7.3 9 mos ago to 6.7 average BS at home 132 with FS of 122 this morning
- Anemia: RBC 3.25-3.51 (4.7-5.43) HGB 10.6-12.0 (12.3-16.3) HCT 31.3-33.5 (35.8-42)
- HTN: 124/82 no recent med changes

Ocular ischemia

Conceptual problems:
1) Impaired perfusion due to vessel wall disease (ie: RVO/RAO/carotid disease)
2) Impaired perfusion due to blood constituents
   - decreased flow rate
     (ie: hyperviscosity)
   - decreased oxygen carrying capability (ie: anemia)

Anemic retinopathy

Mixed level hemorrhaging with or w/o retinal

Can mimic DM or HT retinopathy
Diabetes and anemia

Mikajiri and Nishikawa* reported 2 cases of diabetic retinopathy in patients with combined diabetes and anemia. Both cases had reversible "diabetic retinopathy" following treatment of their anemia.


Diabetes and anemia

Shorb reported 3 cases of rapid progression to PDR with the onset of severe anemia. Berman and Friedman reported 3 cases of resolution of diabetic retinal exudation with treatment of anemia.


Aspects of anemia

Causes:
1/3 due to malnutrition/malabsorption
1/3 due to chronic disease/kidney disease (arthritis/diabetes, etc.)
1/3 due to various other conditions
- Can be seen in as high as 51% M and 41% of apparent healthy adults in the US
- Severe anemia defined as
  HGB <10 M and <11 F

World Health Organization’s (WHO) Hemoglobin thresholds used to define anemia

<table>
<thead>
<tr>
<th>Age or gender group</th>
<th>Hb threshold (g/dL)</th>
<th>(mmol/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children (0.5-5.0 yrs)</td>
<td>11.0</td>
<td>6.6</td>
</tr>
<tr>
<td>Children (5-12 yrs)</td>
<td>11.5</td>
<td>7.3</td>
</tr>
<tr>
<td>Teens (12-15 yrs)</td>
<td>12.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Women, non-pregnant (&gt;15yrs)</td>
<td>12.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Women, pregnant</td>
<td>11.0</td>
<td>6.6</td>
</tr>
<tr>
<td>Men (&gt;15yrs)</td>
<td>13.0</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Severe anemia defined as HGB <10 M and <11 F
Anemia and other disease

Not certain if anemia is a direct or indirect cause for morbidity and functional loss.

Increased risk for “all causes” of death with HGB level < 12.

Relative risk of death is 1.6 for men and 2.3 for women.

Anemia and DR

Combination of poor oxygen delivery into a compromised retinal vasculature causing increased release of vasoproliferative substances and NV.

ETDRS

ETDRS and anemia as risk factor

- Identified 4 additional risk factors for retinopathy:
  - history of diabetic neuropathy, decreased hematocrit, increased triglyceride, and decreased albumin).
- Progressive increase in risk (2x) for high-risk POR adds substantially to the evidence supporting the importance of anemia as a risk factor for diabetic retinopathy.

Patient CK: DR and anemia

Patient referred for urgent PRP OS and OD.

Carotid evaluation

Chemotherapy not stopped but transfusion/EPO considered

Question 2: Does eating dessert cause vision loss?

Answer:
Not likely by itself
..... even if you are diabetic!

Question 3

Will missing my glaucoma drops once a week cause me to lose vision?
Case 3

61 yo WM on glaucoma treatment for 5 years. Pt has NTG with the highest recorded IOP of 21 after multiple visits at different times of day prior to initiating treatment.

- Travatan Z OU with average IOP of 15 (over the 5 years)
- IOP of 22 and 5 repeat IOP’s over 2 mos averaged 20

Case 3: What changed?

Refill pattern of meds confirm compliance. No apparent progression in glaucoma.

Pt taken off oral beta blocker (HT) with a concurrent IOP elevation of 5-7 mmHg.

IOP effects of oral beta blockers

50 mg of oral Atenolol causes a clinically significant IOP drop with the following parameters:
- detectable 2 hours after dose
- maximum decrease of 40% achieved in 2-5 hours
- decrease in effect after 7 hours

Atenolol and IOP

Dose dependant IOP response with comparison of 25mg, 50mg and 100 mg daily

Sustained IOP decrease at 24 hours after dosing if meds taken for 7 days

Mild loss of effect after 1 month

Oral beta blockers and pulse rate

Resting pulse rates 205 patients
(101 pts on beta blocker):
Mean pulse nontreated 76 bpm
Topical use (58 pts)  70.3 bpm
Oral only (18 pts)  64.7 bpm
Both topical and oral (15 pts)  58 bpm

Case 3: Is this really NTG?

<table>
<thead>
<tr>
<th>Tx</th>
<th>IOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travatan Z</td>
<td>15</td>
</tr>
<tr>
<td>Travatan Z</td>
<td>20 (off B-blocker)</td>
</tr>
<tr>
<td>Betagan added</td>
<td>16</td>
</tr>
</tbody>
</table>

Case 3: oral B-blocker use

Untreated IOP of 21 and we assume a 40% decrease from the oral then the real untreated high IOP is over 30.

If we assume a 20% decrease then the untreated IOP range is 26 range.

Considerations for beta blockers

Oral beta blocker on board: Treated glaucoma or OHT with rapid drop in IOP Suspected NTG Untreated glaucoma suspect or OHT with suspicious disc

Oral beta blocker removed: Elevating IOP or loss of control

Question 3:
Will missing glaucoma drops once a week cause me to lose vision?

Answer:
Missing the drop did not cause the IOP rise to pre-treatment levels but the loss of the benefit of the systemic beta blocker did

Question 4
Can using pimple cream cause vision loss?
Case 4

SF is a 72 yo WM presenting for an emergent evaluation due to sudden vision loss of the OD. He states he noticed it when covering his left eye when tying his shoe last week.

PMH: HT x 8 yrs on meds
   osteoarthritis on meds

VA: OD: HM
   OS: 20/30

Pupils: OD: + APD OD

CON: OD: no facial detail or CF
     OS: full

BVA OD: CF @ 3 ft
     OS: 20/25

SLE: LIDS: OD: excoriated area extending from inner canthus to % of lid margin temporally. Lash loss on lower lid
      OS: seborrhea

CORN: inferior SPK OD>> OS

CONJ: intrapalpebral bulbar injection

AC: IV

TA: 58
   19

CASE 4: Steroid induced glaucoma OD

Diagnosis and Treatment

Suddenly noticed vision loss OD secondary to steroid induced unilateral glaucoma. Pt treated with Trastan OD only.

Pt to stop using cortisone cream to his cheek on the right side.

Pt referred to Dermatology for biopsy and surgical repair. Invasive BCC with Mohs technique removal and reconstructive facial surgery occurred over 6 mos following initial evaluation.
CASE 4: Steroid aspects of case

1/3 population are IOP responders
Topical and Oral steroid preparations
Dermatologic preparations
Short term/long term use

CASE 4: Outcome 7 mos later

Elevated IOP bilaterally with greater severity monocularly OD
IOP lowering meds in short term but IOP 14 and 11 off steroid cream
Grafting of face and lid in process as of 5/2011

Question 4:
Can using pimple cream cause vision loss?

Answer:
Not likely - but using steroid cream on the eyelids and periorbital area for 10 years can!
Thank You!

Brian.Mahoney@va.gov