Visual Field Pearls for the Comprehensive Ophthalmologist

Michael S Lee, MD
Residency Program Director and Professor, Department of Ophthalmology and Visual Neurosciences
Mackall-Scheie Research Chair in Ophthalmology
University of Minnesota
Disclosure

- I have no conflicts to disclose
- I will not discuss off-label use of medications
17-year-old

- No complaints, PMH, Meds, SH
- Routine eye exam
- Normal eye exam except visual fields
Pearl #1
Retest asymptomatic patients
We want you to be certain that you see a light before pressing the button. Do not respond if you are unsure. If you respond while there is no light presented, the test time will increase and an error will be recorded. Remember that you will not be able to see all of the lights that are presented.
Always look straight ahead at the steady yellow light. Other lights will flash, one at a time off to the side. Some will be bright, some dim. Press the button whenever you see one of these flashes. You are not expected to see all of them. The best time to blink is just as you press the button.
On this test we are trying to find the dimmest light that you can see. The test will push you to see very dim targets. We want you to press the button as soon as you think you might see a light. There is no penalty for guessing. In fact, we encourage guessing.
Effect of Mental Arithmetic

No PASAT

PASAT

Visual Field Laboratory
Effect of Mental Arithmetic
35-year-old woman

- Nonprogressive visual loss left eye x 6 days
- Mild ache in the left eye
- Acuity 20/15 BE
- Color vision: one plate missed LE
- Pupils dilated
- Fundus: normal
• Dx: “retrobulbar optic neuritis”
Pearl #2
Always test both eyes
(Even if the patient is CF in one eye)
• Dx: “retrobulbar optic neuritis”
Helenius J, Ann Neuro 2012

- 397 patients presented to ER complaining of monocular visual loss
- 69 (17%) revealed binocular loss
In front of chiasm (two exceptions)
60-year-old man

- History of glaucoma x 10 years
- Progressive visual loss despite good IOP control
- Tmax = 23 mmHg BE
- S/P trabeculectomy LE
- IOP = 13 RE, 9 LE
- 2-3+ NS R > L
- Visual acuity 20/40 RE, 20/30 LE
Pearl #3 Left is left and right is right
Pituitary adenoma
49-year-old man

- Sudden onset visual loss yesterday
- Visual acuity 20/400 BE
- Pupils: brisk
- Color: Multiple errors BE
- Fundus: unremarkable
Pearl #4
Bilateral constricted fields has a small ddx
Differential Diagnosis

- Endstage glaucoma
- Endstage RP
- Endstage papilledema
- Bilateral optic atrophy (Uncommon)
- Bilateral occipital stroke (Uncommon)
- Nonorganic vision loss
- Unreliable fields
93-year-old man

- History of NAION RE several years ago
- Notes progressive VA loss LE x 15 days
- Very worried
- History of glaucoma BE
- No symptoms of GCA
- Normal temporal arteries
Examination

- BCVA: HM 20/40
- Baseline: HM 20/30
- Pupils: 3+ APD Normal
- Color: Nil Normal
- Fundus: Cupping Cupping
  Pallor Pink
Pearl #4
Bilateral constricted fields has a small ddx
Nonorganic vs. unreliable
• ESR 35 mm/hr
• CRP 0.8 mg/L (normal < 2.0)
• MRI brain/orbit with gad – normal

• Reassurance that things look stable
• Follow-up 3 days
Pearl #4b
Inconsistent fields ≠ Nonorganic
3 days later

- Vision worse
- Acuity CF 20/200
- Pupils 3+APD normal
- Fundus stable
• Admitted for IV steroids
• ESR 25, CRP 0.8, Still no GCA symptoms
• Next day
  – acuity was 20/50
  – Temporal artery bx positive

Follow patients for change
31-year-old man

- Right parieto-occipital lobe astrocytoma
- Postop: Right PCA stroke
- Acuity: 20/20 OU
- Rest of examination normal

- “I want to drive”

Original Peli Prism 40 PD Base Out
Peli Prism 57 PD Obliquely Oriented

Peli Prism 57 PD Obliquely Oriented
Peli Prism 57 PD Obliquely Oriented
Clinical course

• Passed on the road driver evaluation

• Accident free for more than 5 years
Pearl #5
Consider Peli prism for patients with complete homonymous hemianopia
Conclusion

• Retest asymptomatic patients
• Always test both eyes
• Left is left and right is right
• Learn the ddx of bilateral constricted fields
• Inconsistent ≠ Nonorganic
• A Peli prism can lead to significant and meaningful visual field expansion in complete HH