Does My Patient Need Vision Therapy?
Questions to Ask – Tests to do

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Why the Question

• What if all routine tests have been classified by the school screening or other doctors as “normal” and the parent still believes something is amiss?
• Do WE often make the determination of whether vision therapy is needed more complicated?

Parent’s Comments

• I should have noticed the symptoms earlier
• I wish I would have been more diligent about scheduling eye exams
• I should have kept looking for someone who knew what the problem is
• I should have paid closer attention to my child’s complaints
• I didn’t think I couldn’t afford vision therapy

What are the Barriers?

• Most children receive eye care screening as a basic assessment within each well-child health exam (Pediatrician, Family Practice or Nurse Practitioner)
• Red reflex and alignment
• EPSDT
  - ...\EPSDT\Six Month.pdf
  - ...\EPSDT\Four year.pdf
  - ...\EPSDT\Recommendations of the Caring for Kids EPSDT3456.doc
Recommendations are Confusing

- “Most health plans provide benefit coverage for vision screening; however, payment for vision screening may be inappropriately bundled with the health supervision visit.”
- AAP policy recommends vision screening as part of the regular plan for continuing care beginning at 3 years of age.
- The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of vision screening for children <3 years of age.

Bottom Line

- Our current system is failing our children – even with the basics
- Kids are not really getting the care they need at any age
- Optometry has solutions for many of the cultural issues facing kids today
- Our job is to help patients meet their expectations
- It must start early in life

Today’s Child

- It starts early – very early
- Limitation of Movement
- Distractions from learning
- Surfing the net and video games

Today’s Child

- It starts early – very early
- Limitation of Movement
- Distractions from learning taken to the extreme
- Surfing the net and video games

Technology

- Santa Claus in Midland, MI
- Kids asking for cellphone, iPad, notebook
- What are the ages of kids sitting on Santa’s lap??
Technology

- For Hanukkah this year, Maddon Segall asked for iTunes gift cards and the new iPad Mini.
- He is 3.
- “I hate to tell you but we got it for him,” said his mother, Elyse Bender-Segall, of Livingston, N.J. She added: “He doesn’t like the toys. I buy him every toy. He’s just not interested in them the way he is with the tech.”
- “Apps, on the other hand,” she wrote, “are cost-effective, educational and fun — the perfect gift.”

**Babes in a Digital Toyland: Even 3-Year-Olds Get Gadgets**

By Hilary Stout and Elizabeth A. Harris

Published: December 23, 2013

Today’s Child

- It starts early – very early
- Limitation of Movement
- Distractions from learning
- Surfing the net and video games
Today’s Child

• Expectation in the classroom is becoming more complicated – Does our testing need to become more sophisticated?
• Evolution of technology based learning
  – Must have their own personal laptop by fourth grade
  – Principal call concerned that parents were demanding use of iPad in three year kindergarten

Our Responsibility

• Identify patients at risk of developing vision problems that compromise daily activities and expectations
• Accurately diagnose and manage
• Improve the quality of care rendered to patients with diagnosed conditions
• Minimize the adverse effects of the diagnosed conditions

Pearls to Guide Evaluation and Care

• Refraction is only one part of vision – look deeper in any patient that has academic problems
• With younger children you have more time
• It’s OK to consult with another profession or a colleague

Where do We Start?

• Good history
• Nearpoint testing – where the action is
• Binocular Vision including accommodation and ocular motility
Elements of an Examination

• History
• Ocular Motility
• Binocular Function
• Refraction
• Visual Acuity
• Ocular Health

HISTORY

Signs and Symptoms

• Some signs and symptoms resolve during the course of development and some do not.
• Each of these signs and symptoms must be carefully monitored to ensure proper and appropriate development.
• For those that do not, early intervention is necessary and important to allow the child to reach full potential.

Signs and Symptoms

• What about those more subtle signs and symptoms – those not so obvious
• History become so very important
• Must involve the parent and trust the parent
• Match the sign with the symptoms
• If there is not a match, probe deeper with history or with testing

The Problem

• Too often, parents and other caregivers do not understand the link between vision and the expectations of the classroom
• How much does this bottle of water weigh?
  • Depends more on time than real weight

What are the Signs and Symptoms?

• There are questions to be asked and tests to do that are very revealing to help make this determination
• COVD Quality of Life Checklist
  − Give to parent to complete – not the patient
  − COVD\19 Item COVD-QOL.doc
What are the Signs and Symptoms?

• CI Checklist – on AOA website
  – Give to parent to complete – not the patient
  – ..\..\..\..\..\..\..\..\..
• Additional form(s)
  – ..\..\..\..\..\..\..\..\..
  – forms\CONFIDENTIAL CHILDREN.doc
  – ..\..\..\..\..\..\..\..\..

Evaluating the Responses

• Checklists are a convenient and important means of collecting history information without having to ask the parent every question
• Some doctors do not use checklists because the parent is not always a good historian
  – Verbal versus checklist
• The responses lead you to more specific areas of investigation and to focus in on the areas of risk

Evaluating the Responses

• Very helpful in directing focus in the examination
• Checklists raise awareness of problems the parent may have never recognized as being related to vision

Evaluating the Responses

• Reasons why a parent response on a checklist might be high
  – Parent is very involved and in tune with the struggles of the patient
  – Parent wants to make sure a problem is communicated – artificially high

Evaluating the Responses

• Reasons why a response might be low
  – Parents NOT in tune with the struggles of the patient
  – Parents want to make their child “look good” - protective

Ocular Motility
Ocular Motility

• In addition to the routine eye movement testing, monitor the quality of tracking (Maples NSUCO test)
• Observe
  – Head movement
  – Loss of fixation
  – Energy required to maintain fixation
  – Retinoscopy while following

MAPLES - NSUCO

• Pursuits and Saccades – the one we all do
• Evaluated in four areas
  – Ability
  – Accuracy
  – Head Movement
  – Body Movement

MAPLES - NSUCO

• Rated 1-5
  – No attempt (1)
  – Refixation (2)
  – Head movement (3)
  – Body movement (4)
  – Consistent following for two rotations in each direction with no refixation, head movement or body movement (5)

Scoring for NSUCO Test

MAPLES NSUCO

• The head movement category for both pursuits and saccades appears to show the greatest difference between good and poor readers

KING-DEVICK

• Patient timed while reading intermittently spaced numbers horizontally
• Test becomes more complex with each part
• Norm referenced for age
• This test now used also in evaluation of concussion - Devick presented at this meeting

Developmental Eye Movement Test - DEM

- Patient timed while reading vertical and horizontal numbers that are intermittently spaced
- Norm referenced for age
- Good test to determine if automaticity of number recognition is the problem or if it is related to vision

Developmental Eye Movement Test - DEM

- Because the DEM incorporates a subtest of naming speed that isolates eye movement skill for a more specific clinical diagnosis, its use is preferred.
  — AGA CPG on Learning Related Vision Problems
Elements of an Examination

- History
- Ocular Motility
- Binocular Function
- Refraction
- Visual Acuity
- Ocular Health

Binocular Function
Levels of Fusion
- History
- Worth Four Dot
- Keystone Basic Binocular (KBB)
- Randot
- Phorias/vergences
- 6BI/12BO Flipper

Worth Four Dot

The Keystone Basic Binocular Test (KBB)

Phorias and Vergences
- Phorias (expecteds)
  - Far – 0-1 exo
  - Near – 5-7 exo
- Vergences - near (expecteds)
  - Base Out – 21/15
  - Base In – 22/16

6 BI/12BO FACILITY
- Expect 12 cycles per minute at school age
- Children in kindergarten are expected to begin major copying from the chalkboard
- “He's starting Kindergarten in 4 weeks and he does not know all of his letters and he has to begin writing in a journal.”
Accommodation

• Push up amp
• PRA/NRA
• +/- 2.00 flippers
  – Expect 12 cycles per minute
  – Monitor with a retinoscope
  – Controls for diplopia and suppression?
  – +/- 2.00 Flippers with Polaroid control using Vectogram #9

Phoroptor – PRA/NRA

• Watch for changes in vocal response during the test
• Take blur-out and recovery
• Watch for diplopia on both
  – Eso on minus
  – Exo on plus

± 2.00 FLIPPER

• 12 cycles per minute at school age
• Watch for decrease in speed of clearing during the minute
• Watch for suppression on the Bernell #9 slide (polarized lines)

Refraction and Visual Acuity

Refraction

• Keep it simple
• Listen to the parent
• If nearpoint or reading complaints, -0.25 is not going to solve the issue and delays intervention
• Have stringent control over accommodation
Visual Acuity

- With today’s insistence on technology, distance visual acuity is not as important
- Be sure to evaluate near visual acuity

Supplemental Testing

SUPPLEMENTAL TESTING

- Why is this important?
- History
- All can be performed by a paraoptometric
- Testing can take place while you are engaged elsewhere in the office and your consultation can be done when the para is finished or it can be rescheduled – be consistent

SUPPLEMENTAL TESTING

- The tests like:
  - Wold Digit Symbol
  - Monroe Visual III
  - Gardner Reversal Frequency
- All of these tests demonstrate the impact of binocular complex of human function and performance

WOLD DIGIT SYMBOL

- Norm referenced for age
- Simulates copying from the desk or chalkboard
- Watch for changes in posture and body control during testing

MONROE VISUAL III

- Short term visual memory
- Look at the four symbols on the line for 10 seconds, then reproduce – repeat for each line
- Norm referenced for age

Wold DS.doc
GARDNER REVERSAL FREQUENCY

- Norm referenced reversal test
- Write as called out
- Matching
- Recognition
- Look for patterns of change within the test

GARDNER REVERSAL FREQUENCY

- Development Seminar\Images\Gardner Execution.pdf
- Development Seminar\Images\Gardner Recognition.pdf
- Development Seminar\Images\Gardner Matching.pdf
- Development Seminar\Images\Gardner Instructions and Norms.pdf

ASSESSMENT

- Does the patient show disruptions in visual function?
- Is this recent or long-standing?
- Do the patient symptoms relate to your test results?
- How long can they sustain on the task?
- Is this adequate for their needs?

Decision-making time

- What should be referred?
- What can wait?
  - How long?
  - What to do on follow-up visit
- DON’T WAIT TOO LONG!!
- OR do you just refer anyway?

Relationship with Consulting Doctor

- Who does the follow-up?
- Who makes the glasses?
- When are they released back to the referring OD?
T.K.- SUPPLEMENTAL TESTING age 10

- Referred from local OD
- King-Devick  79 secs/68 secs expected
- DEM –
  - V 45/40 average
  - H 51/47 average
- ± 2.00 - Could not clear 20/25 letters
- Wold Digit Symbol – 175/141 secs expected

T.K.- SUPPLEMENTAL TESTING age 10

- 6BI/12BO –
  - could not clear 20/25 letters
- Reversal Frequency
  - 9/2.07 average
- Monroe Visual III –
  - Score 12/11.2
  - Accuracy 79%/74%

PLAN – T.K.

- Office Vision Therapy – 24-30 visits
- Emphasis on binocularity complex
- Lenses for nearpoint
- After completion of therapy, the visual findings were at or above the expected for his age
- More importantly, T.K. was able to perform in the classroom at the same level as his peers

Case – A.A. - Age 4

- Referred from local OD
- VA – 20/20 OD, OS, OU
- FROM
- Refraction - +0.75 OU
- Cover test – Ø far 2 exo at near
- Full stereo at near – reduced at far

Case – A.A. - Age 4

- Reported that patient periodically closes left eye when points and goes out in the sun
- No other noted problems

Case – A.A. Age 4

- Significant signs and symptoms for exotropia
- Exotropia usually appear between 4 and 6 years of age
- Guidance activities on a daily basis
- RTC three months
CASE – KB Age 10

- Referred from local OD
  - VA – 20/20 OD and OS 20/15 OU
  - Phorias – Far 1 exo near 5 exo
  - PRA - -0.25/+0.25
  - NRA - +1.00/+0.50
  - Near Stereo – 2/9

CASE K.B.

- History
  - Tired eyes at the end of the day
  - In resource in the fourth grade
  - Loses place often when reading – c/o words running together
  - Does well in one on one

SUPPLEMENTAL TESTING KB

- K-D – 102/68
- DEM
  - V – 75/40
  - H – 61/47 (skips two lines)
- ± 2.00 – could not read 20/25 letters
- 6BI/12BO – could not read 20/25 letters
- Symptoms of “finger diplopia” when reading
- Book Ret – marked with – already had +0.75 from referring doctor

PLAN K.B.

- Continue +0.75 for all nearpoint activities
- Vision Therapy – 24-30 visits
- On completion of therapy, all tests were within normal expecteds
- More importantly, K.B. was able to perform in the classroom on the same level as his peers

JRB – Age 10

- Seen in 2009
  - Alternating Esotropia with preference for OD fixation
  - +0.25 on cycloplegic exam
  - Counseled that esotropia due to muscle problem and not accommodative
  - Recommended surgery consult so it would not become constant
  - Not covered on insurance so did not go

JRB – Age 10

- Returned to SCO in 2014
  - Constant Left Esotropia
  - +0.25 on dry
  - EOM – OS tracks when OD covered
  - VA OD: 20/20 OS: 20/25
  - On Near retinoscopy, JRB comes to alignment with +1.50
  - Maintains 20/20 OU at distance through +1.50
JRB – Age 10

• What are the issues?
• Not accommodative – determination made from cycloplegia since no near testing done
• TRY LENSES
• Does this patient need VT?

Summary

• Stop! Look! Listen
• May start with guidance with short follow-up
  – Have a set of guidance activities ready
  • Procedures\FTL.doc
  • Procedures\VLM.doc
  • Procedures\Circle The Letter.doc
  • Procedures\HCR.doc

Summary

• Stop! Look! Listen
• Follow the patient on a more frequent basis
• Develop resources from pool of local ODs
• Above all – ensure the best for the patient

Contact Information

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