Vision and Visual Impairment

Overview
• Anatomy and function of the eye
• How a child’s vision is assessed
• Ocular abnormalities in children
• Definitions and major causes of visual disabilities
• How a child with visual disabilities develops differently from a child with typical development
• Medical and educational intervention for children with impaired vision

Introduction
Impaired vision in childhood
• Can have detrimental effect on physical, neurological, cognitive, emotional development
• Can occur as isolated disability or associated with other developmental disabilities
• Must be identified and treated with effective medical and special education interventions

Structure and Function of the Eye
• Structure problems can result in vision impairment or loss
• Visual loss divided into disorders impacting
1
2
3
4
5
• Ocular support problems can result in
• Ocular motility problems can result in
Ocular Development

• Structures that become eyes first appear at 4 weeks' gestation
• Deviations from typical development throughout gestation can lead to...
  1.
  2.
  3.
  4.
  5.
  6.

Visual Development

Children with disabilities
• Causes of developmental disabilities often...
• 1/2 to 2/3ds of pts with developmental disability have...
• Pediatric ophthalmologist should conduct exam as part of

Amblyopia
• 1.
• 2.

Common Disorders of the Eye in Children with Disabilities

• Cataract—a defect in lens clarity, appearing as a...
  1.
  2.

• Optic nerve hypoplasia—
  1
  2
  3
Common Disorders of the Eye in Children with Disabilities (continued)

- Retinopathy of prematurity (ROP)—vascular damage from…
  1. Can result in…
  2. Screening…
  3. Tx…

- Other retinal disorders—
  1.
  2.
  3.
  4.

Disorders of the Visual Cortex

Cortical visual impairment (CVI)
- Caused by…
- One of most common causes of…
- Behavior: mildly impaired to…
- Requires full ophthalmologic exam to rule out…

Delayed visual maturation (DVM)
- Presents like CVI, but visual function…
- By 6–12 months, DMV infants often have…
- Visual stimulation…

Strabismus and Ocular Motility Disorders

- Strabismus (misalignment of eye)
  3%–4%…
  15%…
  40%…
  2. Two forms:
    1
    2
  3. Causes amblyopia in children younger than…
Nystagmus…
Evaluation can include:
  1
  2
  3
Strabismus and Ocular Motility Disorders (continued)

- Anomalous head postures...
  - 1
  - 2
  - 3

Refraction Errors in Children

- Myopia—
  - The eye is...
  - Severe myopia requires...
- Hyperopia—
  - The eye is...
  - Most common...
  - Most children require...
- Astigmatism—

Vision Assessment

Multidisciplinary vision assessment is critical in determining best interventions

- 1
- 2
- Infants and nonverbal children
  - 1
  - 2
  - 3
  - 4
  - 5
- Toddlers and older children
  - 1
  - 2
  - 3
Other Techniques for Assessing Visual Function

- Tests that do not rely on verbal responses or...
- Optokinetic nystagmus (OKN)—
- Preferential looking (PL) techniques—
- Electrophysiological testing—
- Electoretinogram
- Visual evoked potential
- Visual field testing—

Blindness

Different definitions of blindness and low vision, but from functional standpoint:
- Acuity or...
- Individuals function...
- Care providers should avoid...
- Important to talk to...
- Critical to understand the extent of...
- Causes of blindness
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6

Severe Visual Impairment

- Clues:
  - 1
  - 2
  - 3

Developmental delays appear dependent on amount of...
Interventions

• Early interventions include…

1. Home-based…
2. School-based…
3. Optical aids and…
4. Assistive technology: 
   A. 
   B. 
   C. 
5. Genetic advances
6. Multidisciplinary approach for…

Outcome for Children with Visual Impairment

• Visual impairment can be progressive or non-progressive

• Outcome depends on

1
2
3
4