Subspecialty Rotation: Ophthalmology

Faculty:

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GOAL: Prevention, Counseling and Screening (Ophthalmology). Understand the pediatrician's role in preventing ophthalmic disease, injury and dysfunction through counseling, screening and early intervention.

Counsel patients and families regarding prevention strategies related to the eyes, including:

1. Prophylaxis in the neonatal period for ophthalmia neonatorum
2. Importance of protective eye wear for sports, chemical splashes, ultraviolet light exposure and other activities that warrant eye protection (e.g., helmet with cage or face mask, goggles)
3. Full-time eye protection for children with irreversible poor vision in one eye

Provide routine screening for visual acuity and eye disorders in the newborn nursery, office and school setting. Screen for:

1. Physical findings (white pupil, etc.)
2. Visual acuity
3. Strabismus/amblyopia

Screen for and routinely refer infants with family history of any of the following conditions:

1. Pediatric cataract
2. Pediatric glaucoma
3. Retinoblastoma
4. Strabismus/amblyopia

Screen for and provide routine ophthalmology referral for children with medical conditions associated with eye disease, including:

1. Juvenile rheumatoid arthritis
2. Extreme low birth weight
3. Prematurity
4. Suspected shaken baby syndrome

5. Severe head trauma
6.

Normal vs. Abnormal (Ophthalmology). Differentiate normal from pathologic eye conditions.

Explain to parents the normal development of visual acuity and visual tracking in children.

Distinguish normal or clinically insignificant eye findings from potentially serious ones, including:

1. Variations in pupil size
2. Variations in eyelid structure
3. Coloration of the conjunctiva
4. Coloration of the iris
5. Appearance of the optic disk
6. Variation of tearing and minor eye discharge
7. Pseudostrabismus
8. Pseudostrabismus vs. strabismus

Demonstrate ability to do a good funduscopic examination on children, using mydriatics if needed.

Request or perform and interpret the following clinical studies useful in evaluating eye conditions: conjunctival swab for culture and chlamydia FA, fluorescein eye exam, radiologic studies of head and orbit, including plain film, CT and MRI

GOAL: Undifferentiated Signs and Symptoms (Ophthalmology). Evaluate and appropriately treat or refer commonly presenting ophthalmologic signs and symptoms.

Create a strategy to determine if the following presenting signs and symptoms are caused by an ophthalmologic condition, and if so, treat or refer appropriately:

1. Red eye (painless or painful)
2. Strabismus (exotropia, esotropia, pseudoesotropia, lazy eye, crossed eyes)
3. White light reflex
4. Scleral pigmentation
5. Eyelid swelling

6. Proptosis
7. Decreased visual acuity
8. Asymmetric pupillary size or light response
9. Unequal red reflex
10. Unequal visual acuity or fixation
11. Blurry or indistinct optic disc margins (papilledema, optic neuritis)

GOAL: Common Conditions Not Referred (Ophthalmology). Diagnose and manage patients with common ophthalmologic conditions that generally do not require referral.

Diagnose and manage the conditions listed below:

1. Non-herpetic viral and non-gonococcal bacterial conjunctivitis
2. Corneal abrasion
3. Periorbital cellulitis
4. Hordeolum (stye) and chalazion
5. Simple congenital nasolacrimal duct obstruction in the first year of life
6. Uncomplicated foreign bodies of the conjunctiva
7. Minor lid lacerations not involving the lid margin, lacrimal system or ptosis
8. Small subconjunctival hemorrhage (unless 360 degrees)
9. Periocular ecchymosis

GOAL: Conditions Generally Referred (Ophthalmology). Recognize, provide initial management and refer appropriately conditions that usually require ophthalmologic referral.

Recognize, provide initial evaluation and management of, and appropriately refer these conditions:

1. Amblyopia
2. Cataract
3. Corneal opacity or edema
4. Ectopia lentis

5. Chemical burns/conjunctivitis
6. Complicated and intraocular foreign bodies
7. Decreased visual acuity
8. Sight-threatening ptosis
9. Strabismus and nystagmus
10. Glaucoma
11. Herpetic conjunctivitis/keratitis
12. Gonococcal conjunctivitis
13. Uveitis
14. Red eye and/or corneal ulcer in the contact lens-wearer
15. Aniridia
16. Orbital cellulitis
17. Retinopathy of prematurity in at-risk neonates
18. Acute infantile dacryocystitis with cellulitis
19. Significant eye trauma manifested by hyphema, extraocular muscle palsy
20. Globe penetration, irregular pupil, iritis, or orbital fracture
21. White, black (absent), or significantly asymmetric pupillary reflex
22. Congenital malformations of the eye or periocular structures (e.g., periorbital hemangiomas)
23. Orbital tumor (e.g., rhabdomyosarcoma with proptosis)
24. Papilledema

Discuss the role and scope of practice of optometrists, pediatric and general ophthalmologists, and ophthalmology subspecialists (e.g., retina, cataracts); describe situations where referral is indicated to an individual with pediatric expertise; work effectively with these professionals in the care of children.

GOAL: Ophthalmologic Signs of Systemic Disorders. Recognize various signs of ophthalmologic pathology that may be manifestations of systemic disorders.

Recognize these signs as potential manifestations of systemic disorders and manage and refer when appropriate:

1. Retinal hemorrhages (e.g., child abuse, leukemia)
2. Iritis (e.g., juvenile rheumatoid arthritis, inflammatory bowel disease)
3. Cataracts (e.g., metabolic disorders, genetic malformation syndromes)
4. Papilledema (e.g., increased intracranial pressure)
5. Chorioretinitis (e.g., toxoplasmosis, cytomegalovirus)
6. Subconjunctival hemorrhage (e.g., pertussis, thrombocytopenia, covert suffocation)
7. Periorbital ecchymosis (e.g., neuroblastoma)
8. Ectopia lentis (e.g., Marfan syndrome, homocystinuria)
9. Nystagmus (e.g., central nervous system abnormalities, chemical poisoning)
10. Incomplete eye movements (e.g., VI cranial nerve palsy due to increased intracranial pressure, metastatic tumor to orbit)
11. Painful red eye (e.g., endophthalmitis due to sepsis or meningitis, orbital involvement of leukemia, thyroid eye disease

GOAL: Diagnostic and Screening Procedures (Ophthalmology). Perform diagnostic and screening procedures associated with pediatric ophthalmology.

Develop proficiency in the following procedures:

1. Vision screening (acuity and strabismus; color blindness)
2. Fluorescein dye test to detect corneal abrasion
3. Conjunctival swab for bacteria and chlamydia
4. Removal of simple corneal foreign body
5. Contact lens removal
6. Lid eversion
7. Funduscopic exam
8. Eye irrigation

Request and interpret (with the radiologist) results of common imaging procedures used in the diagnosis and management of ophthalmologic conditions (orbital radiographs, head CT, head MRI).

Procedures

GOAL: Technical and therapeutic procedures. Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.

Conjunctival swab

Eye: contact lens removal

Eye: irrigation

Eye: eyelid eversion

Eye: patch

Eye: fluoroscein eye exam

Foreign body removal (simple): conjunctiva

Source

Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: www.ambpeds.org/egweb. [Accessed 03/03/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.