AAP ZIKA ECHO
(EXTENSION FOR COMMUNITY HEALTHCARE OUTCOMES)
HOUSEKEEPING ITEMS

- For educational and quality improvement purposes, this ECHO session will be recorded.
- Project ECHO® collects participation data for each ECHO session. This data allows Project ECHO to measure, analyze, and report on the ECHO movement’s reach. Data is used in reports, on maps and visualizations, for research, for communications and surveys, for data quality assurance activities, and for decision-making related to new initiatives.
- To protect patient privacy, please do not provide any (PHI) protected health information.
- Please mute your microphone when not speaking. If you have video capability, please enable it.
- There is a chat function in Zoom that may be used to send messages to the group. For IT help, please chat to the AAP Admin and we will assist you.
ACKNOWLEDGMENTS

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OCULAR MANIFESTATIONS OF CONGENITAL ZIKA VIRUS SYNDROME

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ZIKA VIRUS

- WHO: 2015-2016, declared:
  INTERNATIONAL PUBLIC HEALTH EMERGENCY

MICROCEPHALY

2010-2014 = 781 CASES

2015-2016 = 5909 CASES
OPHTHALMIC FINDINGS

- First report: January 2016
- Microcephaly
- Chorioretinal atrophy

Zika virus in Brazil and macular atrophy in a child with microcephaly

Zika virus (ZIKV), a mosquito-borne flavivirus, was first reported in human beings in 1952. Before April 2015, no case had been reported in Brazil. However, between April and November 2015, 21 of the 27 Brazilian states reported ZIKVautochthonous cases. After ZIKV emerged in Brazil, a 20-fold annual increase of microcephaly cases was observed. In 2016, there has been 1388 new reported cases, a prevalence of 93.7 per 100,000 births. The Brazilian Ministry of Health confirmed the relation between ZIKV and microcephaly. The WHO issued an epidemiological alert about the association of ZIKV infection with congenital malformations and neurological syndromes. Here, we report ophthalmic findings in three children with microcephaly born after the ZIKV epidemic in Brazil. Postmortem encephaloid tissue had cerebral malformations detected by CT scans and prenatal ultrasound. ZIKV infections were confirmed in the mothers of the three children. The findings are consistent with the association between ZIKV infection and neurological and ophthalmic abnormalities. The children had no ocular lesions. The three infants had perinatal ocular findings involving solely the macular region. All three infants presented with grossly normal pigment epithelium and foveal notches. A well-defined macular retinal atrophy was present in one child (figure). To our knowledge, this is the first report of our findings in infants with microcephaly born after the ZIKV outbreak. All three children had lacrimal dysfunction in the macular region. Although ZIKV infection was not tested in real-time PCR, the clinical features of ZIKV viral infection, further studies are being conducted in a large group of infants to assess the ocular manifestations of ZIKV viral infection.
Zika Embryopathy: Evaluation and Management Recommendation Letter for Ophthalmologists
Sociedad de Oftalmología Pediatrìca Latinoamericana
February 2016- SOPLA

Recomendaciones de la Sociedad de Oftalmología Pediatrìca Latinoamericana (SOPLA) para manejo oftalmológico de pacientes pediátricos con sospecha de contaminación por virus Zika y pacientes recién nacidos con microcefalia

1. En bebés con diagnóstico presuntivo o confirmado de microcefalia se requiere al menos un examen oftalmológico bajo MICROESOSCOPY INDIRECTA con el objetivo de detectar hallazgos oculares, maculares o periféricos, similares a neuroretinopatía oximéntica (o similar a neuropatía retinopática por toxoplasmosis, o colibacteriasis). Rile
2. Se deben revisar a todos los bebés cuya madre tenga sospecha de contaminación por Zika (bien celular, letén, etérea, etc.)
3. Si hubieran lesiones en la retina del bebé basados en la sospecha y deberá ser referido a rehabilitación visual
4. Si las lesiones fueran periféricas sin daño macular se recomiendan exámenes periódicos de seguimiento (cada 3 meses el primer año y después de 1 año cada 6 meses)
5. Los bebés con lesiones por virus del Zika se revisan cada 3 meses por un año. Los bebés sin lesiones se revisan cada 6 meses por un año.
6. Del todo a que no se conozca el grado de certeza por la vía transalal en el caso de la terapia para realizar la revisión.
7. Hacer el re baño de los casos con fallos en el sistema para SOPLA para control epidemiológico y para la Secretaría de Salud Oficial de su Ciudad.
8. Utilizar las recomendaciones a las sociedades de Pediatría, Genética, Neuropatía.

02/2016

Dra Víctor Manuel Taffa
Presidente SOPLA - 2015-2017

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®
RECOMMENDATIONS: CZS

In newborns with evidence of CZS or microcephaly, the ophthalmic examination should include indirect ophthalmoscopy with mydriasis or Retcam digital imaging, when available.
Ocular manifestations of CZS

1. Circular shape lesions of chorioretinal atrophy including the macula
2. Focal pigment mottling of the retina
3. Optic nerve abnormalities
OCULAR FEATURES

- Macular chorioretinal atrophy = Hallmark of CZS
- Important clinical criteria for CZS diagnosis
- Useful when laboratory tests are not available
- Occurs in 30% of the babies with microcephaly
OPHTHALMOLOGICAL FINDINGS IN BABIES WITH MICROCEPHALY: 36%

1. Chorioretinal Atrophy
   (circular whitish lesions or colobomatous-like): 60%
2. Focal retinal pigment mottling: 70%
3. Optic Nerve anomalies: hypoplasia, double-ring sign, pallor, cupping: 40%

- The visual system in infants with microcephaly related to presumed congenital Zika syndrome.
- Verçosa I¹, Carneiro P¹, Verçosa R¹, Girão R¹, Ribeiro EM², Pessoa A², Almeida NG³, Verçosa P¹, Tartarella MB⁴.
Macular Atrophy: Characteristics

- Well defined edges
- Circumscribed scar
- Whitish or yellowish lesions
- Colobomatus like scar
- No inflammatory signs
- No vitreous involvement/clear vitreous
MACULAR ATROPHY
FOCAL RETINAL PIGMENT MOTTILING
Optic nerve findings:

1. Hypoplasia with the double-ring sign
2. Optic disc Pallor
3. Increased cup-disc ratio.
VISUAL FUNCTION TESTING

- Visual acuity test: Teller Acuity Test
- Visual development milestones
- Visual field
- Contrast sensitivity test
- Abnormal ocular movements
OPHTHALMIC EVALUATION

- Refraction: evaluation in the first year of life
- Refractive errors: glasses should be prescribed
- Hypoaccommodation: deficit of near vision should be analyzed
OCULAR MOTILITY

Strabismus (crossed eyes) (up to 80%) and nystagmus (involuntary eye movements) have to be observed in all pediatric and ophthalmic visits.
MAKING IT EASY FOR THE PEDIATRICIAN

- Red Reflex Test
- Testing Eye Alignment
- Cover Test and light reflex
**Red Reflex Testing**

1. **Red Reflex Test** (RRT) is mandatory in all children
2. **Red Reflex Test** (RRT) does **NOT** detect macular scar
3. Research: 72 patients with CZS: normal RRT in all patients
Making it easy for the Pediatrician

- Testing Eye Alignment
- Cover Test and light reflex
- Observing Nystagmus
- Visual acuity: Fix and Follow
- Amblyopia: detecting a lazy eye
Making it easy for the Pediatrician

- Eye fundus exam with direct ophthalmoscopy, in a dark room: observe macula and optic disc
CVI

- Cerebral/Cortical visual impairment may occur with or without ophthalmologic lesions (up to 85%) in babies with CZS

- Visual impairment may lead to:
  Nystagmus and strabismus (important signs of low vision in children)
VISUAL INTERVENTION PROGRAM

• Vision affects global development
• Presence of ocular lesions or Strabismus or Nystagmus: refer to Early Visual Intervention/Rehabilitation
• Protocols have to be adapted for CZS patients and customized for each child’s needs
RECOMMENDATIONS

If ophthalmological evidence of congenital Zika infection is identified, the regional Secretary of Health should be notified, in compliance with SOPLA recommendations.

Additionally, the recommendations of CDC and of the international societies of pediatrics, gynecology and neurology should be followed.
REFERENCES


• Verçosa I¹, Carneiro P¹, Verçosa R¹, Girão R¹, Ribeiro EM², Pessoa A², Almeida NG³, Verçosa P¹, Tartarella MB⁴.