Medical Evaluation of Internationally Adopted Children

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Disclosure Statement

- I have no actual or potential conflict of interest in relation to this program.

Learning Objectives

- Explain the changes in the demographic, medical, and social characteristics of international adoption
- Identify the role of the pediatrician in reviewing pre-adoption materials for families considering adoption
- Recognize the more common clinical conditions encountered in internationally adopted children

Trends in International Adoption

- 1970s-1993
  - Majority of adoptees from Korean foster homes
  - Excellent health care and bonding
- 1993-present
  - Majority of adoptees from orphanages in Russia, eastern Europe, China, and Ethiopia
  - Medical consequences of institutionalization

Number of Children Adopted Internationally into the USA, 1990-2009

Adoptions to USA by Top Countries
Internationally Adopted Children

- Demographics
  - 40% are < 1 year of age
  - 45% are 1-4 years of age
  - 15% are ≥ 5 years of age
  - 60% are female
- Many are not true orphans
  - Abandoned due to economic hardship, or
  - Parental rights have been terminated in court
  - China’s “one child policy”
  - Dates of birth may not be accurate due to abandonment

Special Needs Adoptions

- Congenital heart
- Cleft lip and palate
- Hepatitis B
- HIV
- Limb anomalies
- Neural tube defects
- Birthmarks
- Syndromes
- Older children

Pre-adoption Considerations

- Limited medical records available
- Uncertain reliability of immunization records
- Variation in pre-adoption living standards
- Different disease epidemiology in countries of origin
- Increased risk for developmental delays
- Testing in other countries may be unreliable

Russian Medical Records

- Diagnoses
  - Perinatal encephalopathy
  - Hypertension/hydrocephalic syndrome
  - Myotonic disorder
  - Pyramidal insufficiency
  - Spastic tetraparesis
  - Hyperexcitability syndrome
  - Intracranial hypertensive syndrome
  - Vegeto-visceral syndrome
  - Oligophrenia

- Tests:
  - Ultrasound everything
  - Multiple specialist exams

- Treatments:
  - Diuretics, ferments, paraffin, electrophoresis, UV therapy, massage

Pre-adoption Records of 56 Eastern European and Russian Adoptees

- Frequent confusing medical terminology
- “Perinatal encephalopathy” = 45%
- “Hydrocephalic syndrome” = 5%
- “Intracranial hypertensive syndrome” = 3%
- None had severe neurologic problems on post-adoption evaluation

Pre-adoption Records of 56 Eastern European and Russian Adoptees

- Pre-adoption, none diagnosed with hepatitis B, TB, or intestinal parasites
- Post-adoption evaluation:
  - Previous hepatitis infection - 14%
  - Chronic hepatitis B - 2%
  - Tuberculosis - 5%
  - Intestinal pathogens - 51%

Albers LH et al. JAMA 1997;278:922-4
Pre-adoption Evaluation

- Review potential parenting issues
- Review available records, photos, and videos
- Pre-orphanage history
- Conditions in orphanage or foster home
  - For every 3 months in an institution, loss of ~1 month of growth and development
- Plot growth parameters on WHO growth charts
- Determine need for additional information
- Arrange for the arrival health evaluation
- Opportunity to arrange for referral to expert consultants and support services, if necessary

Comparison of Sample Populations Used to Create the CDC and WHO Growth Curves for Children Aged <24 mos

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Data Type</td>
<td>Cross sectional</td>
<td>Longitudinal data</td>
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<tr>
<td>Sample Size</td>
<td>4,697 obs. for 4,697 children</td>
<td>18,973 observations for 882 children</td>
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<tr>
<td>Exclusion Criteria</td>
<td>VLBW (&lt;1,500 g)</td>
<td>Low socioeconomic status</td>
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<td></td>
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<td>Birth at altitude &gt;1,500 m</td>
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<td>Birth at ≥37 wks or &lt;32 wks</td>
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<td></td>
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<td>Multiple birth</td>
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<tr>
<td></td>
<td></td>
<td>Perinatal morbidities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Child health conditions known to affect growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maternal smoking during pregnancy or lactation</td>
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<tr>
<td></td>
<td></td>
<td>Breastfeeding for &lt;12 mos</td>
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<tr>
<td></td>
<td>Breastfeeding ≥50% ever breastfed</td>
<td>100% ever breastfed</td>
</tr>
<tr>
<td></td>
<td>≤33% nursed at 3 mos</td>
<td>100% predominantly breastfeeding at 4 mos</td>
</tr>
<tr>
<td></td>
<td>100% still breastfeeding at 12 mos</td>
<td>100% still breastfeeding at 12 mos</td>
</tr>
</tbody>
</table>

Travel Preparation for Adoptive Parents and Their Families

- A travel clinic visit is recommended for prospective adoptive parents
- Family members and child care providers should be current on their immunizations
- Especially measles, hepatitis A, and hepatitis B
- Adults who are due for a tetanus booster should receive Tdap vaccine

U.S. Department of State Visa Medical Examination

- Brief medical examination in home country
- Identify inadmissible health-related conditions
- Not intended to detect all possible disabilities and illnesses
- Vaccinations updated if Hague Convention country
- Tuberculosis screening
- Syphilis test if 15 years or older
Post-adoption Medical Evaluation

- 168 (57%) of 293 internationally adopted children had at least one unexpected medical diagnosis
- 81% of the diagnoses were established by screening tests
- >75% of these diagnoses were infectious diseases


Medical Evaluation

- Evaluation within 24 hours of arrival
  - Any child with obvious acute illness or unstable medical condition
- Evaluation in 1-3 weeks
  - Review medical record accompanying child
  - Physical examination
  - Growth and development evaluation
  - Update immunizations
  - Screening tests

Health Issues in Internationally Adopted Children

- HIV (extremely rare)
- Hepatitis B (5-7%)
- Hepatitis C (0-2%)
- Syphilis (< 2%)
- TB (3-19% LTBI)
- Lead (uncommon)
- Rickets (uncommon)
- Growth delay
- Malnutrition
- Developmental delay
- Iron Deficiency anemia
- Thalassemia
- Hypothyroidism and transient elevated TSH
- Intestinal Parasites (15-50%)
- Scabies (common)
- Hearing/Vision
- Dental decay (common)
- Mental Health

Medical Screening Tests

- HIV serology
- HepBsAg, cAb, sAb
- HepC serology
- RPR
- CBC with differential
- TSH or newborn screen (infants)
- Lead
- Stool O&P
- PPD TST or IGRA (>5yo)
- Developmental screen
- Serology to verify immunity from administered vaccines
- HepA and VZV serology in older children
- In 6 months:
  - Repeat HIV, Hep B&C, and TST/IGRA if negative

Clinical Assessment

- Complete clothes-off physical exam
  - Document evidence of potential abuse
  - Educate new parents about normal physiologic variants
- Age appropriate well-child screen
  - Dental assessment
  - Hearing and vision tests

Update Immunizations

- Children from Korea and Taiwan have accurate immunization records
- Records from Russia, eastern Europe, and China are less reliable
  - Despite written records, only 35% of adoptees had protective antibodies in studies from the mid-1990s
- Commonly missed vaccinations are Haemophilus (Hib), mumps, rubella, chickenpox, pneumococcus

Pediatr Res 1998;43:147A
Pediatrics 2001;108:1050
Why Problems with Immunizations?

- Lack of cold chain to keep the vaccine stable
- Expiration of products
- Poorly produced products in some countries
- Malnutrition
- Country specific schedules
- Given at too young an age
- Intervals between vaccines are too close
- Poor documentation
- Fraudulent records

Possible Approaches to Vaccination in the Internationally Adopted Child

- Repeat all doses of vaccines
- Accept as valid those immunizations which were administered according to AAP or WHO accepted schedule
- Measure serologic response to certain vaccine-preventable diseases (e.g., diphtheria, tetanus, polio, hepatitis B)
- Measure serology, if positive, consider child to have received one immunization in the series

Viral Hepatitis

- Hepatitis A
  - 1%-6% of adoptees have asymptomatic infection
- Hepatitis B
  - Prevalence in adoptees varies by country
    - 5-12% in Africa, Asia, Haiti, and Pacific Islands
- Hepatitis C
  - 1-2% of internationally adopted children
  - Especially from China, Russia, eastern Europe, and SE Asia
- Vaccinated close contacts before arrival of adoptee
- Repeat HepB and C testing in 6 months
- Refer children with chronic infection due to HBV or HCV to a pediatric hepatologist

Tuberculosis in International Adoptees

WHO: Global tuberculosis control: a short update to the 2009 report

Stages of Tuberculosis

- Exposure
  - Breathing the air exhaled by an adult or adolescent with infectious pulmonary TB

- Infection
  - Infection: 3-19% of adoptees
  - The deposition of M. tuberculosis within the body
Stages of Tuberculosis Disease

- Disease: 1-2% of adoptees
- Clinical manifestations caused by the presence of *M. tuberculosis* within the body

Tuberculosis Diagnostic Tests

- Mantoux (PPD) tuberculin skin test
  - If vaccinated with BCG recently, the scar should be allowed to heal before testing
- Interferon gamma release assays (IGRAs)
  - Limited data in children, but considered acceptable for children 5 years of age or older
    - The QuantiFERON-TB Gold (QFT-G) and T-SPOT.TB
  - Repeat testing in 3-6 months if initial test negative
  - A positive test necessitates a CXR

Measuring the PPD Skin Test

- Read in 48-72 hours
- Measure only induration
- Record in millimeters
- Reactivity appears 2-12 weeks after initial infection (median 3-4 weeks)

Positive Tuberculin Skin Test in Internationally Adopted Children

- Induration ≥5 mm if:
  - Evidence of immunosuppression
  - History of contact with active tuberculosis
  - Signs and symptoms of tuberculosis
  - Chest radiograph consistent with TB
- Induration ≥10 mm in all other internationally adopted children

Interferon Gamma Release Assays (IGRAs)

- Advantages
  - Single patient visit to draw a blood sample
  - Results can be available within 24 hours
  - No booster response to subsequent tests
  - Not subject to reader bias
  - Is not affected by prior BCG vaccination
- Disadvantages
  - Limited data in children
  - Cost

Intestinal Parasites

- 15% to 50% of children will be positive
- Obtain at least one stool for ova and parasites
  - Including *Giardia* and *Cryptosporidium* antigen
- Risk factors
  - Ambulation, low weight, birth in Russia or eastern Europe
- Most common parasites
  - *Giardia lamblia*
  - *Hymenolepis* species
  - *Ascaris lumbricoides*
  - *Trichuris trichuria*
Growth Monitoring

- Malnutrition and growth delays are common
- For every 3 months in orphanage, 1 month of linear growth lag expected
- Most show catch-up growth in 1st year

Albers LH et al. JAMA 1997;278:922-4

Development and Behavior

- Developmental delays are common in institutionalized children
- Flat affect, shyness, attachment difficulties
- Initial assessment and repeat in 6-8 weeks if concerns are present
- If not catching-up, early intervention referrals should be considered
  - Motor skills recover more quickly than language

Fetal Alcohol Syndrome

- Most common syndrome seen in children adopted from Russian orphanages
- Maternal alcohol use cited in 12% to 41% of pre-adoption records from Eastern Europe and former Soviet Union

Fetal Alcohol Syndrome

Anticipatory Guidance

- Grief and loss
- Sleep
- Eating
- Autistic-like behaviors
- Disneyland Syndrome
- Attachment
- Post-Adoption Depression
- Return to work
- Daycare and school

Summary

- International adoptees have unique medical and social concerns
- Familiarity with issues specific to country of origin can be helpful
- Developmental and behavioral outcomes often more important than initial medical concerns
- A systematic approach to health assessment will help the practitioner identify most areas needing attention
Resources

- The Handbook of International Adoption Medicine: A Guide for Physicians, Parents and Providers. Author: Laurie C. Miller
- International Adoption: Medical and Developmental Issues, Pediatric Clinics of North America, October 2005
- 2009 Redbook

Resources

- http://www.med.umn.edu/peds/iac/
  - Univ of MN International Adoption website
- http://www.adoptmed.org/
  - Univ of WA International Adoption website
- http://www.adoption.state.gov/
  - Department of State’s intercountry adoption
  - WHO growth charts and tables

CMHC’s International Adoption Clinic

- Established April 2005
- Services
  - Pre-adoption evaluations
  - Post-adoption evaluation
  - Consultations in preparing for foreign travel
- Not a substitute for primary care
  - Designed to be a cooperative arrangement with the primary care provider's

CMHC’s International Adoption Clinic

- Staff
  - Doug Swanson, MD
  - Scott Colliton, MD
  - Linda Carriker, RN, MSN, CPN
  - Kathy Fulton, RN
  - Noreen Kraus, RN
  - Tracey Wetzel, RN
  - Christy Dejmal, RN, CPNP
  - Katie Williams, RN, BSN, CPN
  - Maria Olson, RN, BSN, CPN

CMHC’s International Adoption Clinic

- Support Services
  - Nutrition
    - Shannon Beattie, MS, RD, CNS
  - Hearing & Speech
    - Cynthia Jacobsen, PhD
  - Behavior and Developmental Medicine
    - Carol Daniel, MD
  - Social Work
    - Erin Thomasma, LMSW

The End