Challenges to Pediatric Service in Southern Ethiopia

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Objectives

• To describe the basic health system of southern Ethiopia
• To highlight the differences between pediatric practice in the U.S.A. and Ethiopia
• To understand the challenges of pediatric care in southern Ethiopia

Disclosures

• I have no financial disclosures

Ethiopia: The Horn of Africa

SNNPR: Southern Nations Nationalities and Peoples Region

Hawassa Lake
Hawassa City

Fasiledes

Infant and Child Mortality

- 1 in 17 Ethiopian children dies before the first birthday
- 1 in 11 Ethiopian children dies before the fifth birthday

Infant and Child Mortality

- Rural morbidity and mortality much higher than urban
- Mother's education strongly correlates to child mortality

Leading causes of death

- Malnutrition
- Neonatal (asphyxia, sepsis, congenital, prematurity)
- Pneumonia
- Diarrheal disease
- Malaria
Maternal and neonatal public health

- 27% of mothers in southern region received pre-natal care (improving dramatically)
- 10% of children born in health facility 5% of children weighed at birth
- 48% of last pregnancies protected against tetanus

Vaccinations

- 24% of children age 1-2 fully vaccinated nationally
- Wide range by region (9-79%)

Public health nutrition

- Improving overall
- Breast feeding: 98% (50% through 2 years)
- Anemia very common (~40%)
- Challenges of micronutrients:
  - Vitamin A deficiency
  - Zinc deficiency
  - Iodine deficiency

Public health characteristics

- 54% of households had access to improved drinking water (from 35% 10 years ago)
- 13% of people have it available in home
- Only 8% of families use a non-shared, improved toilet
- Major disparities between rural and urban populations
  - Southern region outside of Hawassa is mostly rural

Southern Ethiopia: SNNPR

- Population of the SNNPR is ~15 million; over 45% of the population are children under age 15 years (EDHS, 2011)
- There are around 56 ethnic groups with their own languages, culture and traditions.
- There are a total of 16 large health facilities
  - Most of them with limited admission facility/OPD service only
  - Only one referral teaching hospital-Hawassa University Referral Hospital (HURH)
  - In the region, there are only 10 pediatricians

Inpatient Pediatric Service in Southern Ethiopia

- Despite the large pediatric population, few health facilities have an established pediatric service.
- Five health facilities have pediatric inpatient service.
- Most other hospitals only have under-five clinics
  - The rest should get the service with adults
Hawassa University
- Is one of the large Universities in Ethiopia
- Five campuses
  - College of Medicine and Health Sciences is one of them.
- More than 38,000 alumni.

Hawassa University Referral Hospital
- Is the only referral and teaching hospital in the Southern region of Ethiopia
- Catchment population is over 20 million people (includes part of the Oromia Regional state)
- Has a total of 350 patient beds
- Each department has inpatient, outpatient and follow up services.

Department of Pediatrics & Child Health
- In the department:
  - 4 General Pediatricians
  - 6 General Practitioners (MD)
  - 25 Interns (last year of Medical School)
  - 2 Residents
  - 42 Nurses
- Largest pediatric admission service in the region

Department of Pediatrics & Child Health
- Usually admit referred/critically ill cases
  - 60 inpatient pediatric beds + 10 SAM beds
  - 30 bed nursery
  - Pediatric Emergency unit
  - Outpatient and specialty clinics

Diseases Peculiar to the Region
- Based on electronic data recording in place since 2013
- Reviewed the admission/discharge diagnosis for each month
- Total monthly admissions to the inpatient ward ranged from 135-231
Severe Acute Malnutrition

- WHO Definition
- Underlying condition for over 60% of child deaths
- Cause:
  - Mostly primary/ Poverty
  - May follow chronic morbidities

Severe Acute Malnutrition: Therapy and Complications

- Phased nutritional therapy
  - Phase I
  - Transition Phase
  - Phase II
- Morbidity/complications:
  - Infection
  - Diarrheal diseases
  - Hypothermia, shock
- Mortality rates:
  - Higher of edematous malnutrition cases
- Outpatient treatment

Severe Acute Malnutrition: Therapy and Complications

The African Meningitis Belt

- Globally: 1.2 million people, 170,000 deaths/year (WHO: Epidemiol. Rev. 2009;80:313-320)
- Ethiopia forms part of the meningitis belt
- Extends from Senegal to West Ethiopia
- Group A meningococcus accounts for 80–85% of all cases (WHO Fact sheet No 141, 2009)
- Epidemics occurring at intervals of 7–14 years.
Acute Bacterial Meningitis

- Hailu and Muhe (2001): 6-8% of hospital admissions in Ethiopia
- A similar pattern from the 1-year admission in my hospital
- Challenges:
  - Late presentation
  - No etiologic diagnosis
  - No antibiogram

Meningitis: empiric therapy

- Initial therapy with...
- f/u lumbar puncture...
- If non-responsive to therapy
- Morbidity/mortality

Diagnosis of meningitis:

- Clinical signs and symptoms:
- Lumbar puncture and culture:
- Imaging availability:

Tuberculosis

- Diagnosis made based on clinical clues
  - Contact history
  - Symptoms and signs
  - CXR abnormality
  - Unavailability of PPD
- Treatment
  - Initially: 4 drugs/2 months
  - Then 4 months continuation/RH
  - DOTS

Tuberculosis: outcomes, common complications

- Outcomes
- Complications

Tetanus

- Vaccine preventable disease
- Not seen in the developed world
- 1-2 cases/month for the past year
- Diagnosis:
  - Mainly clinical
  - History of partial or fully unimmunized
  - History of trauma
  - Fully conscious patient
  - Typical spasms: lock jaw, board-like abdomen, spasms...
**Tetanus – treatment options**

- Treatment: antibiotics
- Sedation: Diazepam and Chlorpromazine
- No intubation and ventilation/ICU care

**Chronic Rheumatic Valvular Heart Disease**

- Common problem
- Magnitude not really known
  - Ongoing: BOHRD study
- Diagnosis based on:
  - Older age at presentation
  - History of pharyngitis
  - History of acute rheumatic fever
  - Physical examination
    - Murmur of MR, AR, MS
    - CXR, EKG
    - Echocardiography

**Chronic Rheumatic Valvular Heart Disease**

- Challenges:
  - Diagnostics- no echocardiographer in the region
  - Treatment:
    - Limited cardiac surgery in the country
- Treatment:
  - Treating congestive state: diuretics
  - Monthly Benzanthine Penicillin

**Summary:**

- Southern Ethiopia has challenges and successes
  - Rural, low-resource setting
  - Good educational infrastructure
  - Few pediatricians for large pediatric population
  - Quality improvement in hospital is possible
  - Trajectory is good with improving vaccinations and public health
  - Still experience diseases that are uncommon in United States (tetanus, tuberculosis)
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# Questions?