

CHILDHOOD TUBERCULOSIS

Prof. Prema. R, *Professor*

Department Of Paediatrics, Shri Sathya Sai Medical College & Research Institute,
Sri Balaji Vidyapeeth, Nellikuppam, Kancheepuram Dist., Tamil Nadu – 603 108, India.

March 24th 1982 was the first ever World T.B Day celebrated!!!

“If the number of victims that a disease claims is the measure of its significance, then all diseases, particularly the most dreaded infections such as bubonic plague, asiatic cholera etc must rank far behind tuberculosis”

– ROBERT KOCH

Introduction

Tuberculosis (TB) is one of the most frequent infectious causes of death globally. It is the largest killer disease often associated with HIV infection.

Of the total population:

- 8 million new cases occur every year, with
- 2.3 million deaths each year of which 2,50,000 are children

India bears nearly 1/4th of the global burden

- 3.5 million children in India have T.B
- There is 40% chance of infection in children less than 6 years
- It increases by 80% by 16 years
- From infancy till 10 years of age the risk of infection is inversely proportional to the age.
- Still few percentages go undetected.
- Children are more likely to develop extra pulmonary TB than adults.
- Various predisposing factors are whooping cough, measles, PEM, HIV infection, contact with household T.B and children not immunized with BCG vaccine.⁽¹⁾

Diagnosis of Childhood T.B

- Diagnosis of T.B in children presents as a greater challenge than that in any other groups, due to the varied presentations, difficulties in collecting appropriate samples for testing etc.
- There have been many methods of diagnosis and new methods are fast emerging

Methods in recent use

- Most recent is the Xpert MTB/RIF assay, which has been developed recently for detection of extrapulmonary TB.
- Cochrane database review suggested that there was an overall sensitivity of 88% and a pooled specificity of 98% as compared to culture.
- USES OF IGRA: Interferon Gamma Release Assay's (IGRA) measure the in vitro response to specific M. tuberculosis antigens. While these assays are more specific than TST (tuberculosis skin test) (BCG does not cause a false-positive result), they have not been found to perform better than TST. A positive IGRA indicates infection but does not confirm the disease.
- HIV testing is a very important “point-of-care” test that is already widely available.

- Exclusion of co-infection with HIV also has important implications because it often makes the clinical diagnosis.

Treatment

Recommendations as per WHO (Sep, 2013) ⁽¹⁾

- isoniazid (H) 10 mg/kg (range 7–15 mg/kg); maximum dose 300 mg/ day
- rifampicin (R) 15 mg/kg (range 10–20 mg/kg); maximum dose 600 mg/ day
- pyrazinamide (Z) 35 mg/kg (range 30–40 mg/kg)
- ethambutol (E) 20 mg/kg (range 15–25 mg/kg)
- Pharmacokinetic studies show that the revised dosages – Benefits
- result in higher blood levels in young children, including those under 2 years of age.
- an excellent safety profile
- No increased risk of toxicity (drug induced hepatotoxicity due to isoniazid & pyrazinamide, optic neuritis due to ethambutol),

New Strategies

- Indian National Strategic Plan 2012-2017,
 - Aim-early case detection
 - Achievement of almost 90% cure rate.
- At present there is no easy way to diagnose latent infection (LTBI), in a highly prevalence setting like our Nation, India.

Further Challenges ⁽²⁾

- proper diagnosis
- Early detection of cases,

- combating resistance
- Breaking the HIV and TB partnership
- Screening the Child laborers
- Physician patient contact is essential to ensure compliance and assess
 - toxicity
 - efficacy of treatment

Prevention

- Enhanced nutrition,
- better housing & sanitation
- Personal hygiene
- Antenatal screening and management of HIV and AIDS
- Health education to children and adults

Conclusion

- Challenges and the preventive strategies will reduce the burden of adult TB, reducing childhood TB is an indicator of recent transmission (adult) and thus serves a sentinel event.
- Both physician and patient share the responsibility of successful treatment and to reduce the burden of TB TODAY in our nation.

REFERENCE

1. www.libdoc.who.int/publications/2013/9789241503709_eng.pdf.
2. Carlos M. Perez-Velez, Ben J. Marais. Tuberculosis in Children. N Engl J Med 2012; 367:348-361.

