Short Communcation

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Tuberculosis in Children- Issues and Challenges

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Abstract

Childhood Tuberculosis has not given much alteration from the part of Governments and Voluntary organizations, if treated well the outcome will be better in children than that of adults.

Introduction

Tuberculosis remains a leading cause of mortality and morbidity. Childhood Tuberculosis is common in areas where Tuberculosis (TB) is common. TB is an important cause of child morbidity and mortality in TB endemic countries. WHO in 2012 estimated that globally there were 530000 TB cases among children (under 15 years of age) and 74 000 TB deaths (among HIV negative children), 6% and 8% of the global totals, respectively.

Common risk factors for TB in children

Close contact with a case of pulmonary TB usually from the same house hold (especially smear-positive or culture-positive pulmonary TB). A case control study on the risk factors of Tuberculosis from rural Bangladesh by Karim MR, Rahman MA, Mamun SAA et al shows that children exposed to family members having TB were five times more likely to develop tuberculosis than those who came in contact with relatives or neighbours suffering from tuberculosis. Other risk factors are age less than 5 years, HIV infection and Severe malnutrition.

The case control study by Karim MR, Rahman MA, Mamun SAA et al shows that socio economic conditions are also related with Tuberculosis in Children. Seven of the study children were illiterate, and all of them had tuberculosis. TB in children was significantly associated with maternal education. Childhood tuberculosis was found to be related with regular or irregular displacement of the family members (changes in composition). Children living in families having only one bedroom had a greater chance of developing tuberculosis than those possessing two or more bedrooms.

Diagnosis of TB in Children

The diagnosis of TB in children usually relies on a combination of clinical and epidemiological features. A diagnostic algorithm has been added for the diagnosis and treatment of pediatric pulmonary and lymph node Tuberculosis.

A thorough and accurate contact history is an important diagnostic tool including symptoms consistent with TB. Tuberculin skin testing is also used to help in diagnosis of TB. A positive test does not distinguish between TB infection and active disease and a negative result does not exclude the disease. A false negative reaction may be due to HIV co-infection, severe malnutrition, other viral infections, immune-suppressed state very young age (younger than 6 months), very recent infection or advanced tuberculosis. Sputum should be examined (sputum microscopy and sputum culture as needed) in all suspected cases whenever available. Due to difficulty in coughing up sputum in children needed for the test, it fails to detect TB in most children. Children produce fewer bacteria in their cough samples, making it much harder to detect under a microscope. Chest radiography is sensitive but less specific to active TB. Other investigations will depend on site of disease.

Another new technique for the diagnosis of TB which is highly sensitive and specific is Gene xpert. It is based on DNA technology and it gives result within 2 hours. But the cost of this test is high common man will not be able afford it. Efforts are being made by various voluntary organizations to make this test available to public at affordable cost.

Treatment for childhood Tuberculosis

Children should be treated with drug regimens as per national guidelines. All children started on TB treatment should be registered under RNTCP. Treatment outcomes for children with TB are usually good and it also should be recorded for RNTCP.

Drug dosages are calculated according to weight (not according to age). Children tolerate first-line anti-TB treatment very well with low risk of toxicity. Resolution of symptoms and weight gain are markers of a satisfactory treatment response in sputum smear-negative cases. HIV-infected children with TB have poorer treatment outcomes than HIV-uninfected children with TB.

It is difficult to administer tablets in children. WHO has suggested the development of a fixed dose combination – one tablet containing all the medicines which will help drug administration. For some children syrups can administered better. Now researches should focus on development of drug combinations in the form of single tablet or syrups.

The challenges of tuberculosis treatment in children include the need for services that provide an integrated, family-based approach to TB care.

Prevention of tuberculosis

Case finding

Children at risk of TB, should be routinely screened. When an adult is diagnosed with TB, all close contacts and family members should be screened and, if diagnosed provide proper treatment. A large proportion of childhood TB cases could be prevented by treating infected children discovered during case finding.

TB preventive therapy or Isonaizid preventive therapy (IPT)

All asymptomatic children who are exposed to an adult with TB should be provided IPT, which prevents infection from developing into active disease. IPT is especially important for children diagnosed with HIV. The dose of Isoniazid for chemoprophylaxis is 10 mg/kg administered daily for 6 months. TB preventive therapy should be provided to:

a. All asymptomatic contacts (under 6 years of age) of a smear positive case, after ruling out active TB irrespective of their BCG or nutritional status.
b. Chemoprophylaxis is also recommended for all HIV infected children who either had a known exposure to an infectious TB case or are Tuberculin skin test (TST) positive but have no active disease.
c. All Tuberculin skin test positive children who are receiving immunosuppressive therapy.
d. A child born to mother who was diagnosed to have TB in pregnancy should receive prophylaxis for 6 months, provided congenital TB has been ruled out.

Vaccination

Routine Immunization is one of the most cost effective public health interventions. BCG vaccine can be given at birth or as early as possible till one year of age. BCG vaccination can be given at birth

even if Isoniazid chemoprophylaxis is planned. BCG immunisation should not be given to an HIV-infected infant.

Infection control

It is important that health facilities, and other community settings such as homes, schools etc. need to be made safe from TB. Measures such as separating patients who are coughing, providing masks, and opening windows and doors to establish natural ventilation at home and other community settings can prevent TB to great extend.

Improving the socio economic status

Research shows that socio-economic status has an impact on TB incidence. So improvement in housing conditions, educational status etc. can bring about a major change.

Conclusion

Childhood tuberculosis has not given much attention from the part of governments and voluntary organizations. Pharmacy companies are also not giving much attention towards child friendly drugs to treat TB in children. If treated well the outcome will be better in children than that of adults. A global initiative is required from the part of WHO to make the stake holders aware of the importance of prevention and management of TB in children.

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