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Recent contribution of the World Health Organization to control childhood tuberculosis

ABSTRACT

The article comments the pioneer and recent publication of the World Health Organization called "Guidance for National Tuberculosis Programmes on the Management of Childhood Tuberculosis in Children", aiming at spreading interesting aspects on the practice of health professionals. A parallel between Latin America and the African continent is established, concerning the co-infection TB-HIV and childhood tuberculosis.

KEY WORDS: Tuberculosis, prevention & control. HIV Infections. AIDS-related opportunistic infections. Child health (Public Health). National health programs. World Health Organization.

INTRODUCTION

In Brazil, it is estimated that 111,000 new cases of tuberculosis (TB) occur per year and about 6,000 annual deaths. Case report, in the last decade, was around 80,000 new cases per year. In 2005, TB was the ninth cause for hospitalization, and the fourth cause of mortality due to infectious diseases. Although the country has 5,570 cities, 70% of cases are concentrated in 315 of them, defined as priority municipalities by the Ministry of Health.^{3,4}

Awareness on the epidemiological situation of childhood TB is very limited. The incidence of TB in the world in the group from zero to 14 was around one million cases in the beginning of the years 2000, corresponding to 10% of the total of cases.⁵ One of the difficulties to obtain more precise data on childhood TB is that the information disseminated by the World Health Organization (WHO) refers, in most cases, to smear positive cases. However, 80% of childhood cases present negative sputum examination.

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WHO, through the Stop TB alternative, published in the end of 2006, the Guidance for National Tuberculosis Programmes on the Management of Childhood Tuberculosis in Children,¹⁰ which was also sequentially published in the International Journal of Tuberculosis and Lung Disease.⁹ This Guidance, the first treating childhood TB worldwide, is the result of the union of several entities such as the International Pediatric Association, and International Union Against Tuberculosis and Lung Disease, World Health Organization, Centers for Disease Control and Prevention (CDC), United States Agency for International Development (USAID) and others. This gathering of entities resulted in an unseen initiative focusing on managing childhood TB, within national programs for TB control (NTPs) of every country.

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The Guidance¹⁰ states the importance of compatible clinical, radiological and epidemiological data on TB to make diagnoses during childhood, mentioning the following topics:

- careful clinical history, including contact history and suggestive symptoms of TB;
- clinical examination, including a growth evaluation;
- tuberculin testing;
- positive sputum, when possible;
- special investigation in cases of pulmonary and extra-pulmonary TB suspicion;
- HIV examination (in high incidence places).

Risk factors are:

- household contact with sputum smear positive TB;
- age under five years old;
- HIV infection;
- severe malnutrition.

According to the Guide,¹¹ the finding of at least three of the elements enable TB diagnoses during childhood:

- chronic symptoms suggesting TB;
- highly suggestive physical examination;
- positive tuberculin testing;
- chest X-Ray suggesting TB.

In Brazil, in 2002, the Ministry of Health started to recommend punctuation for the diagnoses of childhood TB* validated and accurately⁶⁻⁸ also based on clinical, radiological and epidemiological data.

Edwards et al² assessed several diagnoses punctuation scores of childhood TB, highlighting the limitations of such scores, especially in high TB-HIV co-infection areas. However, a more detailed reading of this work enables to see that the punctuation score by the Ministry of Health reached greater balance between sensitivity and specificity (89% and 87%, respectively) than the others. This makes it useful in low complexity health services, where TB-HIV co-infection is low. In South America and the Caribbean, mean TB-HIV co-infection (all forms) is 2/100,000 (ranging from <1 to 22), whereas in Africa this rate is 68 (ranging from <1 to 672).¹¹

Thus, in Brazil and in most Latin American countries it is worth adding the content of the Guidance¹⁰ to the system of diagnoses punctuation of the Ministry of Health.

The aspects referring to tuberculosis treatment and prevention in the Guidance¹⁰ follow the guidelines of WHO that are widely employed or recommended in developing countries especially in African countries but differ significantly from those adopted by the Ministry of Health.*

However, some aspects of the treatment that have not yet been standardized must be highlighted for the contribution they can have to future review of the existing guidelines.

Thus, the Guidance¹⁰ highlights that the complications and sequelae are rare in the treatment regularly conducted. All efforts must be made so that the family and caretakers of the children adhere to treatment. In this sense, Directly Observed Therapy (DOTS) strategy, recommended by WHO and that has been employed and implemented in several countries, including Brazil is valued. There are two modalities of treatment to be considered: daily and temporary (three times a week). Temporary treatment only starts after the attack phase of the daily regimen and is always observed.^{1,10} There are still uncertainties regarding the superiority of directly observed treatment over the self-administered, as traditionally performed in Brazil. Directly observed treatment could be useful in special groups such as homeless, mental patients and those who abandoned previous treatment.¹

Overall, TB form in children present a small number of bacilli, lesions are not extensive and almost never leave sequelae requiring surgical treatment. Likewise, generally, children do not become multiresistant to drugs since the bacilli population in lesions is not enough for the appearance of resistant bacilli. On the other hand, the child living with an adult with multiresistant TB may get infected and get sick with a multiresistant bacilli.

The concept of multi-drug resistant TB (MDRTB) adopted in developed countries implies resistance to rifampicin and isoniazid.¹⁰ In Brazil, the concept is different: it implies resistance to rifampicin, isoniazid and at least to a third drug of phases I and II or operational failure of phase III and resistance to rifampicin and isoniazid evidenced by sensitivity test.* According to the Guidance,¹⁰ the suspicion of one case of MDRTB in childhood is based on the following findings:

- contact with one known case of MDRTB;
- inadequate response to TB treatment;

* Ministério da Saúde. Fundação Nacional da Saúde. Tuberculose: guia de vigilância Epidemiológica. Brasília; 2002.

- recurrence after correct TB treatment.

Treatment of MDRTB in children is still not standardized. Patients must be referred to a reference center. Therapeutic treatment to be used in children must be based on sensitivity test of adults “index case”, because positive sputum of the child is almost never achieved.¹⁰

In some peculiar cases, a paradox response to treatment may occur due to intensive inflammatory reaction of the patient. This is immune reconstitution inflammatory syndrome that leads to worsening of symptoms, fever and the appearance of adenomegaly. It can be related to improvement in nutritional status of the patient under treatment and in those infected with HIV it can occur with the use of antiretroviral drugs. Treatment should be maintained, and the use of corticoid should be considered in these cases. In doubt, the patient should be sent to reference.¹⁰

When outcome is unfavorable to childhood treatment, the possible causes must be assessed and they could be correlated with the following situations:

- poor adherence or incomplete treatment;
- late perception of patients or delay in diagnoses in health system;
- incorrect diagnoses: it is not TB;
- early mortality (e.g.: severe forms of HIV infection);
- poor absorption of drugs in those infected with HIV or in severe undernourished.

FINAL CONSIDERATIONS

The Guidance¹⁰ gave an important contribution to health actions for children TB. However, some aspects must be considered in Latin America, where a major problem is that the several instances involved with TB, such as epidemiology, maternal/child health, family health, immunizations, are not always joint actions, making it difficult to approach children with TB. To face the problem of childhood TB in Latin America, dialog is necessary and articulation among federal, state, and

REFERENCES

1. Corrigan DL, Paton JY. Tuberculosis in children. *Breathe*. 2007;3(4): 351-63.
2. Edwards DJ, Kitetele F, Van Rie A. Agreement between clinical scoring systems used for the diagnosis of pediatric tuberculosis in the HIV era. *Intern J Tuberc Lung Dis*. 2007;11(3):263-9.
3. Hijjar MA, Procópio MJ, Freitas LMR, Guedes R, Bethlem EP. Epidemiologia da tuberculose: importância no mundo, no Brasil e no Rio de Janeiro. *Pulmao RJ*. 2005;14(4):310-4.
4. Hijjar MA, Procópio MJ. Tuberculose: epidemiologia e controle no Brasil. *Ver Hosp Pedro Ernesto*. 2006;5: 15-23.
5. Nelson LJ, Wells CD. Global Epidemiology of childhood tuberculosis. *Int J Tuberc Lung Dis*. 2004;8(5):636-47.
6. Sant'Anna CC, Orfaliais CTS, March MFBP. A retrospective evaluation of a score system adopted by the Ministry of Health, Brazil, in the diagnosis of pulmonary tuberculosis in childhood: a case control study. *Rev Inst Med Trop Sao Paulo*. 2003;45(2): 103-5.
7. Sant'Anna CC, Santos MARC, Franco R. Diagnosis of pulmonary tuberculosis by score system in children and adolescents: a trail in a reference center, Bahia, Brasil. *Braz J Infect Dis*. 2004;8(4):305-10.
8. Sant'Anna CC, Orfaliais CTS, March MFBP, Conde MB. Evaluation of a proposed diagnostic score system for pulmonary tuberculosis in Brazilian children. *Int J Tuberc Lung Dis*. 2006;10(4):463-5.
9. Stop TB Partnership Childhood TB Subgroup. World Health Organization. Guidance for national tuberculosis programmes on the management of tuberculosis in children. Chapter 1: Introduction and diagnosis of tuberculosis in children. *Int J Tuberc Lung Dis*. 2006;10(10):1091-7.
10. World Health Organization. Guidance for national tuberculosis programmes on the management of tuberculosis in children. Geneva; 2006. (WHO/HTM/TB/2006.371).
11. World Health Organization. Global tuberculosis control: surveillance, planning, financing. WHO report 2007. Geneva; 2007. (WHO/HTM/TB/2007.376). Disponível em: www.who.int/tb/publications/global_report/2007/pdf/full.pdf