

## Tuberculosis in Children Perinatally Exposed to HIV in the Context of Current Epidemiological

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### Abstract

Tuberculosis, a disease that has become increasingly rare in the West, has an alarming spread in our country. Only in the first half of 2013 were diagnosed with TB nearly 8,500 people. Romania is already in first place in the European Union regarding the number of cases of tuberculosis. TB incidence increases by about 100 times when associated with HIV infection, being exposed to the same risk mothers and children from HIV. Share tuberculosis among perinatally exposed to HIV in the analysis provided by INBI was 9.81%, representing 71.4% primary tuberculosis in all cases. MDR-TB diagnosis and treatment cost is up to 100 times higher than drug sensitive TB.

**Keywords:** Tuberculosis, HIV, Epidemiology, Infectious Diseases

### Introduction

Tuberculosis is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, known as Koch's bacillus, after the man who first described it in 1895. The most commonly affects the lungs, more rarely other organs - pleura, lymph nodes, bones, kidney, meninges, nervous system central. Tuberculoza is transmitted by droplets in the air by infectious patients, through coughing or sneezing; particles of very small, aerosolized remain long in the air, where they can be breathed, reaching the pulmonary alveoli and latent tuberculosis infection producing.

Infected people have a 5 - 10% risk of developing the disease during their lifetime. People infected have no signs of the disease are not contagious. The evolution of latent infection to disease occurs especially in the less efficient immune system (HIV infection, immunosuppressants etc.), social conditions, but in many cases not identified a factor that favored the evolution to disease infection. Disease progression is slow in weeks or months, with nonspecific symptoms (cough, weight loss, loss of appetite, sometimes febrile syndrome) that sometimes are neglected by the patient, which is one of the reasons of late to medic. Diagnostic is determined based on epidemiological, radiological and isolation of *Mycobacterium tuberculosis* by: - highlighting BK smear or culture is an important element for accurate etiology. Culture must be analyzed in a specialized laboratory to determine the exact type of *Mycobacterium*. Efforts to obtain cultures are essential not only in documenting tuberculosis infection, but also for determining susceptibility to agents tuberculostatic (sensitivity tests, genotyping).

Tuberculosis treatment consisted of a combination of drugs, the minimum duration of 6 months. Wild strain of *mycobacterium tuberculosis* is sensitive to the most effective anti-TB drugs called first -line drugs, but can mutate with the emergence of strains that produce special forms of tuberculosis (polichimioresistant, multidrug-resistant - or MDR resistance extensive -XDR).

Tuberculosis is the second opportunistic infection in adults with AIDS. Incidence among children is not well known. It is important to note that the cohabitation of children with HIV infected adults is an important risk factor for them. A positive history respiratory infection among family members must alert the pediatrician about the possibility of diagnosing TB infection in children.

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Children with perinatal HIV infection are a special category, and pulmonary and extrapulmonary TB increased frequency, late detection of disease severity are common scenarios. Emergence of multi-drug resistance is a public health problem in the current context of our country. Romania is already in first place in the European Union regarding the number of cases of tuberculosis. TB incidence increased approximately 100 times when associated with HIV infection, being exposed to the same risk and children from HIV infected mothers. -MDR TB diagnosis and treatment cost is up to 100 times higher than that of TB drug sensitive.

In Romania benefit from a National Programme for Prevention, Surveillance and Control of Tuberculosis (PNPSCT) by Order no. 422 of 29 March 2013 on the approval of technical achievement for public health programs for the years 2013-2014. It was completed by 1150/2013 the order specified in Article 1, paragraph 1 of the National communicable disease programs.

Operation National Programme for prevention, surveillance and control of TB as a public health national program is financed from the budget of the National Programme for Health Prevention. Objectives multi-drug resistant tuberculosis, 2012–2015, are to reduce TB chemoresistant, preventing the transmission of resistant forms disease (MDR - TB, XDR TB) diagnosis and treatment of at least 85% of MDR - TB in Romania, achieving therapeutic success rates of TB - MDR 75% by the end of 2015.

## Methods

**Place** - The analysis was conducted at the National Institute of Infectious Diseases Prof. Dr. Matei Bals, the Department of Children immunosuppression.

**Selected cases** - were included perinatal HIV exposed children, aged 0-4 years from 01 January 2011 - July 1, 2014, a total of 214 cases. The cases belonged urban and rural. Data were extracted both from observation charts and the electronic database of the Institute.

Risk factors were lack watch BCG vaccination in maternity, prematurity, family epidemiological context (usually there is a family member diagnosed with tuberculosis, the most common TB - MDR), poor social condition.

## Results

Share tuberculosis among children exposed perinatally HIV in the analysis performed was 9.81% of cumulation of 214 cases. Most of the children were diagnosed with TB primoinfection, namely 152 representing a rate of 71.4%. Other forms of tuberculosis were found unmanifested primary TB (14%), 4.76% abdominal TB, TB cavitary 4.76% 4.76% disseminated tuberculosis. The incidence of tuberculosis by gender was higher in women, 61.9%, versus 38.09% in males. Watching dynamic age for the disease, we found a significant increase after age 3, between 3 and 4 years were diagnosed 82 patients or 38.09% of total cases. A total of 152 of the children exposed to family occurred had contact with tuberculosis, respectively 71.4% and 19.04% of them had contact with TB - MDR.

## Discussions

Our analysis has identified some characteristics of TB in children perinatally exposed to HIV, confirming the major risk of occurrence of the disease due to lack of vaccination in maternity. Vaccinating at birth is the consequence on the one hand immunological status uncertain new - born exposed, on the other hand prematurity contraindications for BCG. WHO recommendation for vaccination with BCG is performing at birth or as soon as possible in children perinatally exposed to HIV who are asymptomatic without severe immunosuppression, with Gn birth weight > 2500g! Worrying is intrafamilial contact with tuberculosis of these children in percentage of 71.4%, 19.04% respectively contact with MDR - drug resistant. Among the causes of MDR tuberculosis in children have identified the following: nonattendance parents to treatment, administration unattended, resistance microbial transmission from a family member of resistant forms of the disease (most parents of these children belong cohort Romanian 1989-1993 who are patients pluriexperienced).

Tuberculosis remains a serious threat, particularly for people living with HIV. Worldwide, TB is the leading cause of death among people with HIV. Among people with latent TB infection, HIV infection is the strongest known risk factor for progression to disease.

For prevention, infants exposed to TB infection are evaluated family of 3 in 3 months, 3 months after extinguishing the outbreak still (healing source); infants / children test positive IDR / contact with a person with active TB are treated for latent TB infection; if the contact has a contagious form of tuberculosis, HIV perinatally exposed child is separated from that person until it is no longer positive. Not to be neglected remains BCG vaccination as recommended by WHO.

The higher incidence of the disease in the general population, particularly in children perinatally exposed to HIV, treatment-resistant forms of the disease and the difficulty of eradication is a public health problem in the current epidemiological context of Romania.

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