Tuberculosis in undiagnosed children: What are the criteria to start treatment in Portugal?

Dear Editor,

Worldwide, about 9 million individuals per year are newly infected with tuberculosis (TB), 1 million of which are children under 15 years of age.[1] In Europe between 2000 and 2009, only 42.3% of patients with pediatric TB were assessed by culture, and only 39.9% of those tested were culture positive.[1] In fact, the confirmation rate among pediatric cases was 19.2% in Europe in 2009[1] and 27.6% in Portugal from 2000 to 2009.[2] The variability and low specificity of clinical and radiological findings of TB in children indicate the need for a high level of suspicion in pediatric patients.

In Portugal, TB is managed in the 67 tuberculosis outpatient centers. These centers are responsible for the management of all cases of TB and the screening of at-risk populations. The cases that are hospitalized are directed to these outpatient centers as soon as they are released from hospital.

Notification of all cases of TB to the National Tuberculosis Surveillance System (SVIG-TB) by the clinician is mandatory.

This study was designed to identify the criteria leading to the empirical start of antibiotic treatment in Portugal, without diagnostic confirmation, in children age < 6 years.

This study was based on the implementation of a *web*-based survey, through Medquest®, directed to doctors at the national level with experience in TB. Professionals' experience with TB and specifically with TB in pediatric age was assessed. This survey included 30 multiple choice and simple answer questions, with all responses being anonymous.

The investigation was approved by the Ethics Committee of the EPIUnit-Institute of Public Health, University of Porto, Porto, Portugal.

The questionnaires were sent to all tuberculosis outpatient centers – two of them failed delivery. Of the 65 surveys sent, 29 (44.6%) were completed. Of the 29 responders, 20 (69%) were female. Mean age of the responders was 48.7 years, and mean clinical experience was 20 years (range, 2–38 years), including an average of 15.5 years of experience in TB management and 11.7 years in management of TB in children.

When asked about their criteria to start treatment in children under 6 years of age without diagnostic confirmation, 72% cited epidemiological context, 62% mentioned radiological abnormalities, and 55% cited clinical history and the results of immunological tests, including tuberculin and gamma-interferon assays.

Factors associated with epidemiological context cited as the most important in the decision to start treatment included history of exposure ($n = 25$, 86%), immunodeficiency ($n = 17$, 59%) and country of origin with a high prevalence of TB ($n = 16$, 55%). Radiological criteria included chest radiography, cited by 76% of responders, followed by computerized axial tomography (33%). The most valuable imaging findings were nodules and cavities (96%), adenopathies (41%), pleural effusion (41%) and ''tree-in-bud'' appearance (26%).

Clinical determinants associated with the decision to start treatment included sustained fever (55%), respiratory symptoms (41%) and failure to thrive (34%). The average time window considered for these symptoms was 36.5 days (range, 7 days to 3 months).

Immunological tests considered relevant to the decision to treat included tuberculin tests (41%) and interferon gamma assays (28%).

History of exposure to a patient with active disease and the presence of clinical and radiological changes associated with disease progression were considered especially valuable in determining whether to treat. Although the radiological changes perceived as most suggestive of TB are not commonly presented under 6 years of age for TB, all findings are in agreement with proposed criteria for early treatment of TB in children under 6 years of age.[3,4]

One weakness of our study is that we only received 44.6% of the questionnaires sent. A wider study should be undertaken which includes hospital Pediatricians.

Author contributions

Sara Martins initiated this research study and collaborated in all stages. Isabel Carvalho revised the questionnaire. João Vasco Santos facilitated the use Medquest for writing the questionnaire and gave support to putting it into practice. Raquel Duarte supervised all aspects of this work.

Conflict of interest

There is no conflict of interest.

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http://dx.doi.org/10.1016/j.rppnen.2015.03.003