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A new international approach to tuberculosis diagnosis and treatment: perspectives for the use of new drugs and shorter treatment regimens

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Background. In 2023 there were an estimated 1.3 million tuberculosis (TB) cases among children aged 0-14 years, equivalent to 12 % of the estimated total. Among them, an estimated 25,000-32,000 had rifampicin-resistant TB. In 2022, 214,000 children died from this curable disease. An estimated 80 % of these deaths were in children under 5 years of age, and 96 % were in children who never received TB treatment. Despite substantial progress in treatment of TB in children, gaps in TB care for children still exist, including identification, prevention, and particularly diagnosis.

Materials and methods. Overview of recent World Health Organization (WHO) recommendations and expert opinions in childhood TB diagnosis and treatment.

Results and discussion. Diagnosing of TB in children should be based on all available findings including TB contact and medical history, clinical assessment, immunological diagnosis of TB infection, radiological investigation, and microbiological confirmation. Chest radiography (CXR) in frontal and lateral projection is currently recommended as the primary radiological examination. Computed tomography is considered the gold standard for pulmonary TB imaging owing to it's higher sensitivity and specificity compared with CXR. Bacteriological investigation should be provided in every case of suspected TB. WHO-approved respiratory specimens for diagnosing of pulmonary TB in children are expectorated and induced sputum, gastric aspirate, nasopharyngeal aspirate, and stool. WHO-approved rapid molecular tests Xpert MTB/RIF and Xpert MTB/RIF Ultra should be used as the initial diagnostic tests on pediatric specimens. Collecting multiple specimens either from the same or different types increase the microbiological yield. However, negative bacteriological findings never exclude TB in children, and in cases without bacteriological confirmation the diagnosis is based on clinical criteria, such as TB contact history, radiology and immunological tests. In children under 10 years of age with presumptive pulmonary TB integrated treatment decision algorithms may be used to start the treatment of TB.

With the exception of rifapentine for children under 2 years of age and pretomanide for children under 14 years of age, all other antituberculosis medications can be used in children. Except for pretomanide, all other antituberculosis medications are available in child-friendly drug formulations. According to current WHO recommendations, all-oral treatment regimens can be tailored for any child with drug-sensitive or drug-resistant TB. Shorter 4-month treatment regimens can be used for children with a non-severe form of drug-sensitive TB, and 6-month regimens for children with drug-resistant TB.

Conclusions. Current treatment recommendations offer great opportunities for treating TB in children; however, diagnosing TB in children remains challenging.