

Is tuberculosis in children a severe disease?

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Abstract

Tuberculosis is a global health issue. However, childhood TB is often given less attention and neglected, particularly in the endemic area, due to the negative result of sputum smear and no specific signs and symptoms among children. Children exposed to infectious disease have a high risk of infection and progressing to TB disease, which may develop into a severe form, such as TB meningitis or military TB, and cause death. Therefore, case finding or contact screening is needed to prevent undiagnosed and untreated childhood TB. Parents or family and health professional staff should support adherence to preventive therapy for infected children and anti-TB treatment for TB disease.

Keywords: children; serious disease; tuberculosis

Tuberculosis (TB) is one of the most common health problems worldwide, including among children. TB is the second leading infectious killer after Coronavirus disease (COVID-19). Even though the World Health Organization (WHO) estimated that although TB cases have declined recently, the decline has been very slow. In 2021, the WHO estimated TB cases at 10.6 million (range, 9.9–11.0 million), 11% of them being children. This number of cases was increased by 4.5% from the previous year (World Health Organization, 2022). Furthermore, the social distancing policy during the COVID-19 pandemic led to prolonged household contact, which may facilitate the household transmission of TB and increase TB cases (Alene et al., 2020). According to several studies, household contact is the leading cause of TB in children (Flamen et al., 2014; Martinez et al., 2020; Narasimhan et al., 2013).

Regarding acknowledging and increasing public awareness about TB and its impacts, World TB Day is observed annually on 24 March. The theme of 2023 is "Yes! We Can End TB", which aims to end TB by 2030 (Stop TB Partnership, 2023). However, the increased attention to TB among children is a challenge, particularly in TB-burdened countries. Due to childhood TB incidence being lower and less than in adult, the child population is often neglected. TB treatments and programmes for children are also often excluded because they rarely have positive sputum smears (Mellado Peña et al., 2018). Furthermore, children exposed or infected with TB usually do not have signs and symptoms of TB (World Health Organization, 2018). Therefore, many parents or families have been unaware of their child's condition and assumed that TB is not a severe disease and does not need to be treated.

Children in close contact and exposure to infectious TB have a high risk of infection and progress to TB (Seddon & Shingadia, 2014; Thomas, 2017; World Health Organization, 2013). In addition, the duration and intensity of contact, the level of infection bacteria, and immunology influence the progress of mycobacterium tuberculosis in children (Seddon & Shingadia, 2014; World Health Organization, 2013). The risk of progression to TB disease also depends on the children's age; infected infants (less than 12 months), children at 1-2 years, 3-5 years, and 5-10 years have about 50%, 20-30%, 5%, and 2% risk of progression to disease, respectively (Seddon &

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Shingadia, 2014).

So, how serious is TB disease in children? TB in young children may develop into a severe form of TB, such as TB meningitis or military TB. Furthermore, it was also reported 14% of deaths in children less than 15 years and 80% of deaths among those under five years (Holmberg et al., 2019; World Health Organization, 2018). The critical issue is that 96% of TB deaths in children were found to be in those who were undiagnosed and untreated (Holmberg et al., 2019). Children exposed to TB may develop to be infected with TB in several weeks or within one year of becoming infected. Therefore, contact screening among children is essential (Seddon & Shingadia, 2014).

Contact screening for children is a systematic process that aims to identify contacts among children who have or are at greater risk of developing TB disease (World Health Organization, 2014). However, of children with a contact history, only 40% received TB preventive treatment for children under five years and 0.6% for children more than five years (World Health Organization, 2022). In TB-endemic countries, TB has been found primarily in poor and vulnerable populations. Poverty, limited access to health services, and lack of knowledge about TB were the main barriers to taking their child for contact screening. Therefore, it will impact case findings of TB and delay getting diagnosis and treatment (Marais & Graham, 2016; Mellado Peña et al., 2018; World Health Organization, 2018).

To prevent the progression of exposure to TB to TB disease, children less than five years exposed to TB should receive prophylaxis or preventive therapy. This will decrease the development of TB disease during childhood (Mandalakas et al., 2021; Reuter et al., 2020; World Health Organization, 2014). In South Africa, the effectiveness of preventive therapy in reducing the development of TB was 82% (Martinez et al., 2020). However, children with TB disease should receive anti-TB treatment. This treatment has purposes for curing, preventing death, relapse of TB, development of drug-resistance, and reducing TB transmission (Holmberg et al., 2019; World Health Organization, 2014). However, successful preventive therapy and anti-TB treatment are dependent on the child's adherence to their therapy or treatment. At the same time, the child's adherence needs support from their family, nurses or other health professionals (Rakhmawati et al., 2022).

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