Reduced sensitivity of immunodiagnostic tests for active tuberculosis in children

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Dear Editor,

A recent review article summarized approaches to diagnosis of childhood tuberculosis [2]. The author emphasized the paucibacillary nature of tuberculosis in children with a low probability of bacteriological confirmation. The author then omitted to mention that cornerstones of diagnosis of tuberculosis in children remain immunodiagnostic methods like tuberculin skin testing and interferon gamma release assays (IGRA). It is therefore important to discuss the limitations of immunodiagnostic testing which arise specifically in tuberculosis in children. The author mentions the low sensitivity of tuberculin skin testing in malnutrition and human immunodeficiency virus infection. In manifestations of active tuberculosis in children like tuberculous meningitis and miliary tuberculosis, the tuberculin skin test is equally insensitive with sensitivities of 30% (positivity of Mantoux test defined as induration >10 mm) reported for tuberculous meningitis [3]. The sensitivity of IGRA's in active culture confirmed tuberculosis in adults was in a meta-analysis found to be 90 (95% confidence interval, 86–93%). In children, recent investigations found a sensitivity in all forms of active tuberculosis of 58% for the ELISPOT

version of the IGRA [1]. The cause for this reduced immune response in children may be a lower bacterial load and/or an immaturity of the Th-1-driven immune response in childhood plus in active tuberculosis an immunosuppressive effects on the Th-1 response by *Mycobacterium tuberculosis* through induction of interleukin-10. It is therefore important to confirm *M. tuberculosis* infection in children with suspected active tuberculosis by using both skin test and IGRA. Using both tests increased sensitivity to 100% in culture-confirmed active tuberculosis [1].

References

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