Conclusion. FFPE tissue analysis by multigene targeted PCR assays expands the opportunities for rapid identification of Mycobacterium species, allowing differentiation of MTBC from NTM, and helps to detect co-infections. Using multigene targeted PCRs in combination with histopathology and IHC improve the accuracy of diagnosis, particularly in the diagnosis of atypical and environmental pathogens.

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2110. Interferon-γ Release Assay Performance in Pediatric Tuberculosis Disease in California Alexander Kay, MD; Shamim Islam, MD, DTM&H; Kristen Wendorg, MD, MS; Jane Westenhouse, MPH and Pennan Barry, MD, MPH

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Background. Interferon Gamma Release Assays (IGRAs) and Tuberculin Skin Tests (TSTs) are important adjunctive pediatric TB diagnostics. This study analyzes the use and performance of IGRAs in children diagnosed with active TB disease in a high-resource, low-incidence setting.

Methods. We retrospectively reviewed cases of children reported with TB to the California Department of Public Health (CDPH) Tuberculosis Registry during 2010–2015. Our cohort included 778 children, after excluding 68 without an IGRA or TST reported. We analyzed case characteristics associated with test selection and performance, and measured IGRA test sensitivity in children with laboratory confirmed TB disease.

Results. Of the 778 cases of pediatric TB reported, 360 were laboratory confirmed. Children tested with IGRAs were more likely foreign-born, aged ≥5 years, to have extrapulmonary disease only, and be confirmed, than those tested with TST. Children aged ≥2 years with confirmed disease were less likely to have a positive IGRA [PRR 0.72 (95% CI 0.55, 0.93)] than children <2 years. Indeterminate IGRAs were associated with age <1 year [PRR 9.23, 95% CI 2.87, 29.8] and central nervous system (CNS) disease [PRR 2.69, 95% CI 1.06, 6.86] on multivariate analysis suggesting an association with severe disease. IGRAs and TST sensitivity were similar in children <5 years with confirmed disease and test concordance was high in this age group, but sensitivity was <87% for both tests among children aged ≥2 years. IGRA was more sensitive than TST among children aged 5–18 years (96%, 95% CI 88%–99% vs. 83%, 95% CI 72–91%, P = 0.012).

Conclusion. Children presenting with TB symptoms and disseminated disease were more likely to be tested by IGRA than TST. In children <5 years, IGRA sensitivity is similar to TST, but sensitivity of both tests are reduced in children ≥2 years. Indeterminate results are higher, particularly in <1 year-olds and in CNS disease. In children aged ≥5 years with laboratory confirmed TB, IGRA has greater sensitivity than TST, and should be considered the preferred immunodiagnostic test. Our data suggest that IGRA is underutilized in this population.

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