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P0970 Accuracy of QuantiFERON-TB Plus test for tuberculosis diagnosis in children

Danilo Buonsenso[1], Giovanni Delogu*[2], Clelia Perricone[1], Roberta Grossi[2], Angela Careddu[2], Flavio De Maio[2], Ivana Palucci[2], Maurizio Sanguinetti[2], Piero Valentini[1], Michela Sali[2]

[1] Institute of Pediatrics, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma - Università Cattolica del Sacro Cuore, [2] Institute of Microbiology, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma - Università Cattolica del Sacro Cuore

Background: Diagnosis of childhood tuberculosis (TB) is notoriously challenging due to non-specific clinical and radiological signs and difficulty in obtaining a microbiological confirmation.

The role of interferon gamma (IFN-g) release assays (IGRAs), in particular of QuantiFERON-TB Gold In-Tube (QFT-IT), for the diagnosis of TB infection in pediatric population has been evaluated and its efficacy demonstrated.

Recently the QFT-IT has been replaced by QuantiFERON-TB Gold Plus (QFT-Plus; Qiagen, Germantown, MD). The new generation QFT-Plus has two different antigen-coated tubes called TB1 (green tube), which contains peptides derived from ESAT-6 and CFP-10, and TB2 (yellow tube), which contains the same peptides with additional short peptides which potentially stimulate $CD8^+$ T cells.

In this retrospective cross-sectional study, we aimed to evaluate the accuracy of the QuantiFERON-TB Plus (QFT–Plus) among 196 young children aged 0 to 18 years old who were evaluated for LTBI screening, enrolled with suspected active TB or in therapy.

Materials/methods: Following clinical, microbiological and radiological assessment, children were tested by the QFT-Plus assay and qualitative and quantitative responses to TB1 and TB2 stimuli are analyzed according to age, origin and diagnosis.

Results: Among the 196 children enrolled in the study we identified 18 cases of latent infection and 10 cases of active disease. The sensitivity for active TB was 80% and the specificity was 93.8%.

Among the 5 (2,6%) children with indeterminate results, viral infection were diagnosed in 4 (80%) cases and 1 child was an oncologic subject (20%). Quantitative IFN-g response was not significantly different in children with active TB compared to those with LTBI.

Conclusions: Our results indicate that QFT-Plus has specificity similar to QFT-GIT assay in pediatric population and quantitative QFT-Plus values (TB2-TB1 IFN-g UI/ml) do not provide additional prognostic information to discriminate active TB to LTBI.