DETERMINANTS FOR TUBERCULOSIS INFECTION AMONG CHILDREN INVESTIGATED WITH INTERFERON GAMMA RELEASE ASSAYS AND HAVING CONTACT WITH ADULT TUBERCULOSIS CASES

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Background and aims: The predictive factors of latent tuberculosis infection (LTBI) among children remain irresolute. The study evaluated the determinants associated with LTBI among children having contact with adult index cases.

Methods: A cross-sectional study was conducted among 223 children (mean age±SD: 7.8±4.7 years) evaluated for LTBI. Participants were assessed concomitantly with the tuberculin skin test and QuantiFERON-TB Gold-In-Tube (QFT-IT) assay. Children with indeterminate QFT-IT findings were excluded. LTBI was defined among children with positive QFT-IT.

Results: Among the study sample (n=223), QFT-IT results were negative in 59.6% (n=133), positive in 37.7% (n=84), and indeterminate in 2.7% (n=6) children. Children with LTBI did not differ from their non-infected counterparts with respect to age (p=0.147), gender (p=0.850), or ethnicity (p=0.220). The proportion of adult cases among whom the laboratory isolation of M. tuberculosis was confirmed was similar between groups (p=0.320). LTBI children did not differ from their non-infected counterparts with respect to living conditions and/or socioeconomic indicators. Following controlling for confounding factors, the multivariate regression analysis indicated that LTBI was independently associated with lack of prior BCG immunization (adjusted odds ratio, AOR: 4.17; 95% CI: 1.33-12.55), patient age (AOR: 1.23; 95% CI: 1.09-1.39), and origin from a TB endemic country (AOR: 3.33; 95% CI: 1.45-7.69).

Conclusions: Lack of prior BCG immunization was proximally associated with LTBI among children having contact with adult cases. Additional determinants included greater age and origin from a TB endemic country. Public health interventions aimed at deterring LTBI among children should account for the identified risk factors for TB infection.