High prevalence of respiratory non-tuberculous mycobacteria respiratory infections in children living with HIV in South-East Asia

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Background: Data on burden of Non Tuberculous Mycobacteria (NTM) and related Pulmonary Diseases are limited in HIV-infected children in developing countries. We investigated NTM respiratory infections (RI) prevalence, species distribution, and associated factors in HIV-infected children with a suspicion of tuberculosis in four countries in South-East Asia and Africa.

Methods: From 2011 to 2014, HIV-infected children 13 years with a suspicion of tuberculosis were included in the ANRS 12229-PAANTHER 01 study in Burkina-Faso, Cambodia, Cameroon and Vietnam after parental consent. Children underwent respiratory and stool samples for mycobacterial culture and molecular identification of species. Children with 1 analyzable sample in culture were included. NTM-RI was defined as 1 sample culture-positive for any NTM. Logistic regression models were used to identify factors associated with respiratory NTM or Mycobacterium avium complex (MAC) infections.

Results: Of 438 children enrolled, 427 had 1 analyzable sample. Median age was 7.3 years, with 212 (49.7%) male, 245 (57.4%) Asian, 267 (63.9%) underweight, 212 (51.1%) severely immuno-depressed, and 258 (60.4%) ART-naïve. Prevalence of culture-confirmed tuberculosis was 13% (55/427), including 5 co-infections tuberculosis/NTM. Prevalence of NTM-RI was 10.8% (46/427), 16.7% (41/245), and 2.8% (5/177), in all, Asian, and African children, respectively. MAC were isolated in 21/427 (5%) children overall and 17/125 (13.6%) children from Asian origin with severe immune-depression (CDC classification 2014). Majority of NTM patients with severe immune-depression were infected by MAC (n=17/19). In contrast, Mycobacterium fortuitum, scrofulaceum, interjectum, and gordoniae were the most frequent species in non or moderately immuno-depressed children. Overall, South-East Asian origin (OR 7.2; 95%CI 2.5-21.1), age 5-9 yo compared to 0-2 yo (OR 10.1; 95%CI 2.3-44.8), and severe immune-deficit (OR 3.3; 95%CI 1.5-7.2) were factors independently associated with NTM-RI; CD4-T Lymphocytes count &LT; 50/mm³ (OR 9.8; 95%CI 3.6-26.5), and Asian origin (OR 16.5; 95%CI 2.2-126.1) were independently associated with MAC infection.

Conclusions: NTM-RI are frequent in HIV-infected children with presumptive tuberculosis in South-East Asia, not only as opportunistic infection in severe immuno-deficiency. NTM contribution to lung disease is unclear in a tuberculosis suspicion context. Empiric treatment for both tuberculosis and MAC may be relevant in most severely immuno-depressed HIV-children suspected of tuberculosis in South-East Asia.

More information