

**Value of Chest X Ray in the diagnosis of tuberculosis in HIV-infected children living in resource limited countries. Preliminary results from the ANRS 12229 - PAANTHER 01 study**

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## **Objective**

In this study we aimed to evaluate inter-reader reproducibility and diagnostic value of standard chest radiography (CXR) in the diagnosis of tuberculosis (TB) in HIV-infected children.

## **Methods:**

Prospective study conducted in Burkina Faso, Cambodia, Cameroon and Vietnam from April 2010 to May 2014. Selection criteria were HIV-infected, aged  $\leq 13$  years, with clinical suspi-

cion of tuberculosis. Three readers: a local radiologist (LR), a pneumopediatrician (PP) and a pediatric radiologist (PR) independently reviewed every CXR, blinded to any other conditions. Agreement was reached if readers agreed on the presence and location of lesions consistent with TB: alveolar opacity, bronchial compression, excavation, ghon focus, gibbus, miliary, nodular infiltrates, paratracheal nodes, peri-hilar nodes, pleural effusion, tracheal compression. A case/control analysis (culture- confirmed TB / unlikely TB, alive without TB treatment at 6 months) was also performed.

### **Results:**

401 children were enrolled in the study; sex-ratio of 1:1, median age of 7.25 years [3.54-9.71]. Inter-reader agreement on lesions consistent with TB, expressed by Kappa coefficient were as follow: LR versus PP:  $K=0.3660$  [0.2731-0.4590]; PP versus PR:  $K=0.3087$  [0.2146- 0.4028]; LR versus PR of 0.1471 [0.0643- 0.2299]. Among 42 cases and 148 controls patients, final agreement for the presence of lesions showed significant association with culture-confirmed TB only for miliary (14,6% of cases,  $p=0.002$ ), and nodular infiltrates (16.7%,  $p=0.024$ ). The other lesions were not discriminant for diagnosis.

### **Conclusion:**

Analysis of CXR showed poor inter-reader reproducibility and diagnosis value for TB in HIV-infected children, perhaps because of the frequency of co-morbidities, while correct and rapid diagnosis is of major concern for reducing mortality. Radiological criteria should be discussed for this specific population.