

The Agreement between the Chest CT Scan and Chest X-Ray Findings Among Tuberculin Positive Filipino Children - a Prospective Study

Beverly D. Dela Cruz, MD; Nerissa Atienza-De Leon, MD; Ma. Theresa Policarpio, MD; Dulce Requiron-Sy, MD; Milagros S. Bautista, MD; Fernando F. Ayuyao, MD; Teresita S. De Guia, MD

Background --- Because of the lack of sensitive test to confirm the diagnosis of pediatric TB, attempt to correlate chest radiograph and chest computed tomography (CT) scan among children with tuberculin positive skin test would be an important diagnostic modality in confirming diagnosis of TB disease. This study aims to determine the level of agreement between chest radiography and Chest CT Scan among tuberculin positive children.

Methods --- This is a cross-sectional study involving all children ages 6 months to 18 years old, with a tuberculin positive test as interpreted by conventional criteria, with symptoms like cough, history of contact, cough and other non-specific symptoms like fever, weight loss, hemoptysis, anorexia, dyspnea, weakness and diarrhea with parental informed consent were enrolled. Chest radiographs were interpreted by 3 radiologists blinded to the clinical diagnosis of the patients and chest CT scan were read by three readers blinded to both the clinical diagnosis and results of previous chest radiographs. A concordance rating of positive or negative significant lymphadenopathy was obtained by kappa-values at 0.05 level of significance.

Results --- A total of 98 children met the inclusion criteria and were included in the final analysis. There were 49% males and 51% females with the ages 4-5 and 9-11 commonly affected among males and 6-8 years among females. There was poor inter-rater agreement for other forms of lymphadenopathy on chest radiography same for reticular lesions (100%). The three readers had high inter-rater agreement on CT scan (87.5%-93.8%), highest for granuloma and peribronchial nodes (both 100%). Levels of inter-rater agreement for radiography against CT scan in the discrimination of abnormal from normal findings were low. The overall agreement between the chest x-ray compared to chest CT scan had a kappa value of 0.084 ± 0.095 with a p value of 0.189 which is not statistically significant.

Conclusion --- There is low agreement in the interpretation of chest CT scan versus chest x-ray in tuberculin positive children. More precise descriptors for positive CT scan for diagnosing primary tuberculosis in children in contrast with chest radiographs in which must be sought to accurately standardize the readings since the sensitivity and specificity of chest x-ray were only 75% and 67% respectively. The overall positive predictive value for diagnosing TB disease in children using chest x-ray was only 59% compared to chest CT scan which was 98%. *Phil Heart Center J 2012;16:86-7.*