

Sensitivity and Specificity of the Xpert MTB/RIF Assay for Tuberculosis in Pediatric Patients

Background: In 2013, WHO recommended that Xpert MTB/RIF should be used as one of the diagnostic test for suspected tuberculosis (TB) children.

Objective: To evaluate the sensitivity and specificity of Xpert MTB/RIF assay by comparing with the clinical diagnostic criteria and TB culture in suspected TB infected children.

Method:

This is a cross – sectional study. We enroll pediatric patients with suspected TB disease aged under 18 years at Queen Sirikit National Institute of Child Health, Bangkok Thailand between 2016 to 2018. We analyzed the accuracy of Xpert MTB/RIF based on clinical diagnostic criteria and positive TB culture.

Results:

There are 126 cases. One hundred and forty six specimens are tested for Xpert MTB/RIF assay including gastric wash, sputum, lymph node tissue, pus, and cerebrospinal fluid (CSF). By comparing with the clinical criteria, specimens with good sensitivity for Xpert MTB/RIF are sputum (72.7%) and pus (66.7%). When comparing with positive TB culture, sensitivity of Xpert MTB/RIF from pus, gastric wash, and lymph node tissue increases from 66.7%, 50% and 50% respectively to 100%. Based on both clinical criteria and positive TB culture, CSF has low sensitivity for Xpert MTB/RIF. Most specimens have high specificity (100 %) for Xpert MTB/RIF except pus (66.7%) and lymph node (85.7%).

Conclusion:

For pediatric patients, we suggest that sputum and pus should be used as the first choice of specimens for Xpert MTB/RIF testing.