

INPLASY PROTOCOL

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None declared.

Diagnostic accuracy of Xpert MTB/RIF for Mycobacterium tuberculosis in pediatric bronchial lavage fluid: a meta-analysis

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Review question / Objective: This study aimed to investigate further the accuracy of Xpert MTB/RIF for diagnosing Mycobacterium tuberculosis in pediatric bronchial lavage fluid.

Eligibility criteria: Inclusion criteria:(1) the study type was a retrospective study. (2) the language of the literature was limited to Chinese and English. (3) the country, gender, race and course of the patients' disease in the literature were not limited. (4) the diagnostic method of the observation group was Xpert MTB/RIF. The reference tests used were M. tuberculosis cultures (tuberculosis culture based on solid or liquid media) or the composite reference standard (PTB was defined as a positive culture or clinically diagnosed based on the clinical symptoms of the patients, including cough for more than two weeks, fever, or weight loss, pneumonia that did not improve using antibiotics, or contact with an adult who had tuberculosis).(5)Children with suspected pulmonary tuberculosis. (6) the available data were used for calculating the sensitivity, specificity, and likelihood ratios. Exclusion Criteria:(1)Repeated published literature in which the original text was not found. (2) Review category, experience summary, animal experiment, case report, meeting, meta-analysis, etc. (3) Disease diagnosis is not consistent with tuberculosis in children. (4) Studies without a control group.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 April 2022 and was last updated on 19 April 2022 (registration number INPLASY202240118).

INTRODUCTION

Review question / Objective: This study aimed to investigate further the accuracy

of Xpert MTB/RIF for diagnosing Mycobacterium tuberculosis in pediatric bronchial lavage fluid.

Condition being studied: We have completed the retrieval of literature data, have not found a Meta analysis similar to our research, and are currently extracting relevant data and analysis.

METHODS

Participant or population: Children with pulmonary tuberculosis.

Intervention: Diagnosis of Mycobacterium tuberculosis in children by Xpert MTB/RIF.

Comparator: Sputum culture or liquid rapid culture of Mycobacterium tuberculosis in children.

Study designs to be included: Retrospective study.

Eligibility criteria: Inclusion criteria:(1) the study type was a retrospective study. (2) the language of the literature was limited to Chinese and English. (3) the country, gender, race and course of the patients' disease in the literature were not limited. (4) the diagnostic method of the observation group was Xpert MTB/RIF. The reference tests used were M. tuberculosis cultures (tuberculosis culture based on solid or liquid media) or the composite reference standard (PTB was defined as a positive culture or clinically diagnosed based on the clinical symptoms of the patients, including cough for more than two weeks, fever, or weight loss, pneumonia that did not improve using antibiotics, or contact with an adult who had tuberculosis).(5)Children with suspected pulmonary tuberculosis. (6) the available data were used for calculating the sensitivity, specificity, and likelihood ratios.Exclusion Criteria:(1)Repeated published literature in which the original text was not found. (2) Review category, experience summary, animal experiment, case report, meeting, meta-analysis, etc. (3) Disease diagnosis is not consistent with tuberculosis in children. (4) Studies without a control group.

Information sources: A total of 7 databases were searched for this Meta-analysis, including 4 Chinese databases: China

National Knowledge Infrastructure (CNKI), VIP Chinese Science and Technology Journal Full-text Database (VP-CSJFD), Wangfang Journal Article Resource (WangFang), and China Biology Medicine (CBM), and 3 English databases (PubMed, The Cochrane Library, and Embase).

Main outcome(s): The sensitivity, specificity, and likelihood ratios.

Quality assessment / Risk of bias analysis: The risk of bias in each study was evaluated independently by two researchers using the Quality Assessment of Diagnostic Accuracy Studies 2 (QUADAS-2) tool. A "yes" (low degree of bias risk or good applicability), "no" (high degree of bias risk or poor applicability), or "unclear" (lack of relevant information or uncertainty of bias risk) designation was attributed to each item to define the quality of each study.

Strategy of data synthesis: The search mode is PubMed:(((Xpert MTB/RIF) AND ((Child"[Mesh] OR (Children) OR (Kid)))) AND (("Bronchoalveolar Lavage Fluid"[Mesh] OR (((((Bronchoalveolar Lavage Fluids) OR (Bronchial Alveolar Lavage Fluid)) OR (Pulmonary Lavage Fluid)) OR (Lung Lavage Fluid)) OR (Alveolar Lavage Fluid)) OR (Bronchial Lavage Fluid)))) AND (("Tuberculosis"[Mesh] OR (((((Tuberculoses) OR (Kochs Disease)) OR (Koch's Disease)) OR (Koch Disease)) OR (Mycobacterium tuberculosis Infection)) OR (Tuberculosis)) OR (Mycobacterium tuberculosis))))).

Subgroup analysis: Since the reference standards used for the control group in this study are different, mainly including the smear acid-fast staining method, MGIT960 liquid culture method and Roche culture method.

Sensitivity analysis: Sensitivity analysis was performed by removing the included studies one by one.

Country(ies) involved: South Africa, China, India.

Keywords: bronchoalveolar lavage fluid, Mycobacterium tuberculosis, Xpert MTB/RIF.

Contributions of each author:

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