INPLASY PROTOCOL

To cite: Liao. Comparison of metagenomic next-generation sequencing technology and GeneXpert MTB/RIF assay in tuberculosis:a meta-analysis. Inplasy protocol 202340111. doi: 10.37766/inplasy2023.4.0111

Received: 29 April 2023

Published: 30 April 2023

Corresponding author:
Jiadan Liao

liaojiadanhz@qq.com

Author Affiliation:
Department of Cardiology, the Third Affiliated Hospital of Zhejiang Chinese Medical University.

Support: **No funding.**

Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None declared.

Comparison of metagenomic next-generation sequencing technology and GeneXpert MTB/RIF assay in tuberculosis:a meta-analysis

Liao, JD[1].

Review question / Objective: **The research on the diagnostic value of mNGS and Xpert for tuberculosis is mainly based on small samples, and the results obtained are somewhat different. Therefore, the author conducts a meta-analysis of the literature on the accuracy of using mNGS and Xpert to diagnose tuberculosis, compares the application value of the two methods in the diagnosis of tuberculosis, and makes a comprehensive evaluation to provide reference for optimizing the clinical rapid diagnosis ability and strengthening treatment and management.**
Condition being studied: **The author conducts a meta-analysis of the literature on the accuracy of using mNGS and Xpert to diagnose tuberculosis, compares the application value of the two methods in the diagnosis of tuberculosis.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 30 April 2023 and was last updated on 30 April 2023 (registration number INPLASY202340111).

INTRODUCTION

Review question / Objective: **The research on the diagnostic value of mNGS and Xpert for tuberculosis is mainly based on small samples, and the results obtained are somewhat different. Therefore, the author conducts a meta-analysis of the literature on the accuracy of using mNGS and Xpert to diagnose tuberculosis, compares the application value of the two methods in the diagnosis of tuberculosis, and makes a comprehensive evaluation to provide reference for optimizing the clinical rapid**

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METHODS

Participant or population: Tuberculosis.

Intervention: Using mNGS and Xpert to diagnose tuberculosis.

Comparator: mNGS and Xpert.

Study designs to be included: Meta analysis.

Eligibility criteria: The inclusion criteria included the following:1)research assessing the diagnostic significance of mNGS and Xpert in tuberculosis; 2) Tuberculosis or non-tuberculosis patient sample size of more than 10, as studies with a small sample size can introduce considerable bias in estimating sensitivity and specificity; 3) sensitivity and specificity of mNGS and Xpert were calculated from standard two-by-two tables, which had been extracted for each study.

Information sources: Relevant eligible articles concerning the diagnostic performance of mNGS and Xpert in tuberculosis were systematically searched in PubMed and CNKI (last update: March 2023).

Main outcome(s): Pooled specificity, sensitivity, negative likelihood ratio (NLR), positive likelihood ratio (PLR), diagnostic odds ratio (DOR), SROC as well as prediction ellipses for the hierarchical ordinal regression for ROC curves (HROC) model were calculated[6]. Stata Version 12.0 (Stata Corp., LP, College Station, TX, USA) was adopted for bias evaluations of enrolled studies. Finally, Deek's funnel plot asymmetry test was utilized to assess publication bias throughout the analysis.

Quality assessment / Risk of bias analysis: The PRISMA statement was followed and MetaDisc 1.4 was employed for analysis.

Strategy of data synthesis: The PRISMA statement was followed and MetaDisc 1.4 was employed for analysis[5]. Pooled specificity, sensitivity, negative likelihood ratio (NLR), positive likelihood ratio (PLR), diagnostic odds ratio (DOR), SROC as well as prediction ellipses for the hierarchical ordinal regression for ROC curves (HROC) model were calculated[6]. Stata Version 12.0 (Stata Corp., LP, College Station, TX, USA) was adopted for bias evaluations of enrolled studies. Finally, Deek's funnel plot asymmetry test was utilized to assess publication bias throughout the analysis.

Subgroup analysis: Sample types.

Sensitivity analysis: Stata Version 12.0.

Country(ies) involved: China.

Keywords: mNGS , Xpert,tuberculosis

Contributions of each author:
Author 1 - Jiadan Liao.
Email: liaojiadanhz@qq.com