

INPLASY PROTOCOL

To cite: Hu et al. Accuracy of computer-aided diagnosis system for the diagnosis of malignant thyroid nodules on ultrasound: A protocol for systematic review and meta-analysis. Inplasy protocol 202290047. doi: 10.37766/inplasy2022.9.0047

Received: 09 September 2022

Published: 09 September 2022

Corresponding author:
Qifan Hu

779131761@qq.com

Author Affiliation:
The First Affiliated Hospital of
Dalian Medical University

Support: Liaoning Natural
Science Found.

**Review Stage at time of this
submission:** The review has
not yet started.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: Accuracy of computer-aided diagnosis system for the diagnosis of malignant thyroid nodules on ultrasound: A protocol for systematic review and meta-analysis.

Accuracy of computer-aided diagnosis system for the diagnosis of malignant thyroid nodules on ultrasound: A protocol for systematic review and meta-analysis

Hu, QF¹; Liu, QY²; Sun, LP³; Wang, H⁴.

Review question / Objective: Accuracy of computer-aided diagnosis system for the diagnosis of malignant thyroid nodules on ultrasound: A protocol for systematic review and meta-analysis.

Condition being studied: The patients should be those who had undergone thyroid nodules.

Information sources: PubMed, Web of Science, Cochrane Library, and Chinese biomedical databases will be searched from their inceptions to the September 5, 2022, without language restrictions.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 September 2022 and was last updated on 09 September 2022 (registration number INPLASY202290047).

Condition being studied: The patients should be those who had undergone thyroid nodules.

METHODS

Participant or population: The patients should be those who had undergone thyroid nodules.

Intervention: This study compare CAD with pathology for diagnosing malignant thyroid nodules.

Comparator: This study compare CAD with pathology for diagnosing malignant thyroid nodules.

Study designs to be included: The primary outcomes include sensitivity, specificity, positive and negative likelihood ratio, diagnostic odds ratio, and the area under the curve of the summary receiver operating characteristic.

Eligibility criteria: This study will only include high quality clinical cohort or case control studies.

Information sources: PubMed, Web of Science, Cochrane Library, and Chinese biomedical databases will be searched from their inceptions to the September 5, 2022, without language restrictions.

Main outcome(s): The primary outcomes include sensitivity, specificity, positive and negative likelihood ratio, diagnostic odds ratio, and the area under the curve of the summary receiver operating characteristic .

Quality assessment / Risk of bias analysis: Two authors will independently select the trials according to the inclusion criteria, and import into Endnote X9(THomson Corporation,Stanford,USA). Then remove duplicated or ineligible studies. Screen the titles, abstracts, and full texts of all literature to identify eligible studies. All essential data will be extracted using previously created data collection sheet by 2 independent authors. Discrepancies in data collection between 2 authors will be settled down through discussion with the help of another author. The following data will be extracted from each included research: the first author's surname, publication year, language of publication, study design, sample size, number of lesions, source of the subjects, instrument, "gold standard," and diagnostic accuracy. The true positives, true negatives , false positives, and false negatives in the fourfold (2 x 2) tables were also collected.

Methodological quality was independently assessed by two researchers based on the quality assessment of studies of diagnostic accuracy studies (QUADAS) tool.[8]The QUADAS criteria included 14 assessment items. Each of these items was scored as "yes" (2), "no" (0), or "unclear"(1). The QUADAS score ranged from 0 to 28, and a score ≥ 22 indicated good quality. Any disagreements between 2 investigators will be solved through discussion or consultation by a 3rd investigator.

Strategy of data synthesis: The STATA version 14.0 (Stata Corp, College Station, TX, USA) and Meta-Disc version 1.4 (Universidad Complutense, Madrid, Spain) softwares were used for meta-analysis. We calculated the pooled summary statistics for sensitivity, specificity , positive and negative likelihood ratio, and diagnostic odds ratio with their 95% confidence intervals. The summary receiver operating characteristic curve and corresponding area under the curve were obtained. The threshold effect was assessed using Spearman correlation coefficients. The Cochran's Q-statistic and I test were used to evaluate potential heterogeneity between studies. If significant heterogeneity was detected(Q test P50%), a random effects model or fixed effects model was used. We also performed sub group and meta-regression analyses to investigate potential sources of heterogeneity. To evaluate the influence of single studies on the overall estimate, a sensitivity analysis was performed. We conducted Begg's funnel plots and Egger's linear regression tests to investigate publication bias.

Subgroup analysis: This study will only include high quality clinical cohort or case control studies.

Sensitivity analysis: The primary outcomes include sensitivity, specificity, positive and negative likelihood ratio, diagnostic odds ratio, and the area under the curve of the summary receiver operating characteristic.

Country(ies) involved: China.

Keywords: computer-aided diagnosis;
thyroid nodules; meta-analysis.

Contributions of each author:

Author 1 - Qifan Hu.

EEmail: 779131761@qq.com

Author 2 - Qiyu Liu.

Author 3 - Lipeng Sun.

Author 4 - Hui Wang.