INPLASY PROTOCOL

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None declared.

Prognostic factors for survival in differentiated thyroid cancer with pulmonary metastases: a protocol of systematic review and meta-analysis

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Review question / Objective: **Pulmonary metastasis (PM) is the most common form of distance metastasis in differentiated thyroid cancer (DTC), which has a poor prognosis. However, the prognostic risk factors are not yet well identified and analyzed. This systematic review and meta-analysis aims to fill this blank though identifying and discussing survival prognostic risk factors systematically for DTC patients with PM. Pulmonary metastasis (PM) is the most common form of distance metastasis in differentiated thyroid cancer (DTC), which has a poor prognosis. However, the prognostic risk factors are not yet well identified and analyzed. This systematic review and metastases aims to fill this blank though identifying and discussing survival prognostic risk factors systematically of DTC patients with PM.**
Condition being studied: **differentiated thyroid cancer with pulmonary metastases.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 February 2022 and was last updated on 09 February 2022 (registration number INPLASY202220026).

INTRODUCTION

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METHODS

Search strategy: Take PubMed as an example: #1“ differentiated thyroid cancer” OR “papillary thyroid cancer” OR “follicular thyroid cancer”; #2 “lung metastases” OR “pulmonary metastases” OR “distant metastases”; #3 “follow-up” OR “prognos*”; #4 #1 AND #2 AND #3.

Participant or population: Patient with differentiated thyroid cancer.

Intervention: Combine with pulmonary metastases.

Comparator: Hazard ratio of overall survival and progress free survival between differentiated patients with and without pulmonary metastases.

Study designs to be included: Retrospective studies, observational studies and RCTs.

Eligibility criteria: All retrospective or prospective studies that discussed the prognostic factors of adult patients with pulmonary metastases from differentiated thyroid carcinoma were taken into consideration.At least one or more interesting endings have been reported and explored at least one prognostic factor.

Information sources: PubMed, Scopus, Embase, Cochrane library, CNKI, Google scholar, Wanfang databases and VIP databases.

Main outcome(s): The OS hazard ratio and PFS hazard ratio will be extracted from included report. If possible, the OS rates and PFS rates will also be extracted. The value resulting from the meta-analysis will be expressed as Pooled HR or Pooled OS/PFS, and will be represented graphically through a forest plot or line plot.

Data management: The two researchers (Z.H and L.YL.) independently used standardized data extraction forms in Microsoft Excel to extract key items (such as date, study design and prognostic factors) from each eligible study. The form is based on the CHARMS-PF checklist, which was modified by Riley and his colleagues. For studies that did not adequately report prognostic indicators (such as OS, PFS), an unadjusted risk ratio (HR) was obtained from the survival ratio using the method reported by Perneger and his colleagues. After extracting the data, we reviewed the data and resolved all disputes after discussion and consensus among the researchers. We did not try to contact the study authors to get unpublished data.

Quality assessment / Risk of bias analysis: We used the prognostic study quality (QUIPS) tool developed by Hayden et al for bias analysis. In this study, we classified studies with 5 or 6 areas of low bias risk as overall low bias risk, studies with 2 or more areas of high bias risk as overall high bias risk, and all other studies as overall moderate bias risk. The results of the risk and bias assessment were visualized in the form of a summary chart, and if at least 10

studies were included, publication bias would be assessed by visual examination of the funnel chart.

Strategy of data synthesis: According to the recommendations of the guidelines, we extracted and analyzed the different effects of each possible prognostic factor. Since most of the included studies provide HR values as effect estimates, we do not directly combine OR, RR and HR for meta-analysis, but try to extract HR values indirectly to be included in the meta-analysis. The potential prognostic factors reported in two or more studies will be described in the main text, and the prognostic factors mentioned in only one study will be discussed in supplementary materials. As the real prognostic effect of prognostic factors may vary from study to study, a random effect model was used for meta analysis. All statistical analyses and drawings are done using the metaFor package and the ggplot2 package of the R Statistical Program version 4.0.2 (R Core team, R Statistical Computing Foundation, Vienna, Austria). P < 0.05and 95% CI not including 1.00 were considered being statistically significant.

Subgroup analysis: With enough literatures are included, different levels of the same prognostic factors or different effects of the same prognostic factors will be analyzed by subgroup analysis.

Sensitivity analysis: Sensitivity analysis will be performed if necessary.

Language: There are no restrictions on the language, but searchable English abstracts are required.

Country(ies) involved: China.

Keywords: Differentiated thyroid cancer, Pulmonary Metastasis, Prognosis, Meta-analysis.

Contributions of each author:

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