

Clinical significance of matrix metalloproteinase-9 expression in papillary thyroid carcinoma: a meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 June 2023 and was last updated on 29 June 2023.

INTRODUCTION

Review question / Objective The purpose of this study was to investigate the relationship between the expression of matrix metalloproteinase-9 (MMP-9) and pathological indexes in papillary thyroid carcinoma (PTC).

Condition being studied Many studies have been published to evaluate the effect of MMP-9 overexpression on clinicopathological features in patients with papillary thyroid carcinoma, Such as age, gender, LNM and TNM stage, but the results of these studies have been inconsistent and contradictory. To more accurately estimate the association between MMP-9 overexpression and clinicopathological features in patients with papillary thyroid carcinoma, We performed a meta-analysis of studies published.

METHODS

Search strategy We conducted a comprehensive search in the Embase, Pubmed, CNKI, and Web of Science databases for eligible prospective or retrospective cohort studies assessing the prognostic role of MMP-9 overexpression in patients with thyroid cancer.

Participant or population Individuals diagnosed with thyroid carcinoma.

Intervention All participants with PTC in the intervention group showed high MMP-9.

Comparator All control patients with PTC were defined with low MMP-9.

Study designs to be included Prospective or retrospective cohort studies.

Eligibility criteria The inclusion criteria for the relationship between MMP-9 and thyroid cancer in this meta-analysis are as follows: 1, Research must be original and published; 2, All observed patients must be pathologically diagnosed with papillary thyroid carcinoma; 3, Determination of MMP-9 expression in tumour tissue; 4, Determination of MMP-9 protein expression rather than mRNA. Exclusion criteria are as follows: 1, Studies' types were basic studies, case reports, literature reviews, expert opinions, and conference abstracts; 2, Papers not published in English or Chinese; 3, Overlapping patient cohorts, and 4, Non-concomitant effect size.

Information sources Embase, Pubmed, CNKI, and Web of Science databases.

Main outcome(s) 95% confidence intervals (CI) and odds ratios (OR).

Quality assessment / Risk of bias analysis The quality of selected papers was assessed using the Newcastle Ottawa Scale (NOS). A score of 7-9 indicates good quality, a 6-7 indicates moderate rate, and a score of 5 or below indicates poor quality.

Strategy of data synthesis Data analysis was performed using STATA version 17.0 (STATA, College Station, TX). For binary variables, 95% confidence intervals (CI) and odds ratios (OR) were used. Depending on the heterogeneity involved, study results were analysed using either a fixed-effect model or a random-effects model. P and I² statistics were used for heterogeneity. When P was >0.1 and I²<50%, the fixed effects (Mantel-Haenszel method) model was used for analysis. When P was <0.1 or I²>50%, the random products (DerSimonian-Laird method) model was used. A P value less than 0.05 indicates a statistically significant difference.

Subgroup analysis Subgroup analysis stratified by various clinicopathological factors was conducted to detect the source of heterogeneity.

Sensitivity analysis We used the sensitivity analysis to test the stability of this meta-analysis.

Country(ies) involved China.

Keywords matrix metalloproteinase-9; papillary thyroid carcinoma; immunohistochemistry; biomarker.

Contributions of each author

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