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Prognostic and clinicopathological value of Ki-67 in patients with esophageal squamous cell carcinoma: a systematic review and meta-analysis

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Wang, YY; Dai, ML; Chen, X.

Corresponding author:
Xu Chen

grace1230020@163.com

Author Affiliation:
Huzhou Central Hospital.

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 06 April 2024 and was last updated on 06 April 2024.

INTRODUCTION

Review question / Objective The relationship between Ki-67 expression and the prognosis of patients with esophageal squamous cell carcinoma (ESCC) has been extensively studied. However, their findings were inconsistent. Consequently, the present meta-analysis was performed to identify the precise value of Ki-67 in predicting the prognosis of ESCC.

Condition being studied PubMed, Embase, Web of Science, and Cochrane Library databases were thoroughly and systematically searched until September 26, 2023. The effect of Ki-67 on predicting OS and DFS of ESCC was estimated by calculating pooled HRs and relevant 95% CIs. In addition, the relationship between Ki-67 and clinicopathological characteristics of ESCC was assessed using pooled odds ratios (ORs) and 95%CIs.

METHODS

Participant or population ESCC patients were diagnosed based on histology or pathology.

Intervention Articles reporting the significance of Ki-67 in predicting one or more survival outcomes and the HRs and 95% CIs could be available or calculated from the given data.

Comparator ESCC patients with low expression of Ki-67.

Study designs to be included Cohort studies,including prospective and retrospective cohorts.

Eligibility criteria The following studies were included: (1) ESCC was diagnosed based on histology or pathology; (2) IHC was performed to measure Ki-67 expression; (3) articles reporting the significance of Ki-67 in predicting one or more

survival outcomes, such as OS, progression-free survival (PFS), DFS, or recurrence-free survival (RFS); (4) the HRs and 95% CIs could be available or calculated from the given data; (5) the Ki-67 threshold for stratifying high/low expression was identified; and (6) English studies. The following studies were excluded: (1) case reports, letters, meeting abstracts, comments, and reviews; (2) articles that included duplicate patients; and (3) animal studies.

Information sources PubMed, Embase, Web of Science, and Cochrane Library databases were thoroughly and systematically searched until September 26, 2023.

Main outcome(s) OS and DFS.

Quality assessment / Risk of bias analysis Study quality was evaluated using the Newcastle-Ottawa Scale (NOS) (range, 0-9). Articles with NOS scores of ≥ 6 were considered high-quality studies. Begg's and Egger's tests were used to assess publication bias.

Strategy of data synthesis The effect of Ki-67 on predicting OS and DFS of ESCC was estimated by calculating pooled HRs and relevant 95% CIs. Between-study heterogeneity was evaluated using Cochrane's Q test and I2 statistics. Specifically, significant heterogeneities were identified based on p 50%, so the random-effects model should be used; otherwise, the fixed-effects model should be utilized.

Subgroup analysis Subgroup analyses were conducted according to country/region, sample size, TNM stage, treatment, and Ki-67 threshold, and survival analysis was performed to explore the potential sources of heterogeneity.

Sensitivity analysis A sensitivity analysis, in which one study was eliminated each time to examine its impact on pooled results, was conducted to verify the stability of our results.

Language restriction English.

Country(ies) involved China.

Keywords esophageal squamous cell carcinoma; meta-analysis; prognosis; biomarker; evidence-based medicine.

Contributions of each author

Author 1 - Yanyan Wang.
Email: marktotoro@163.com
Author 2 - Menglu Dai.
Email: daiml1985@126.com
Author 3 - Xu Chen.
Email: grace1230020@163.com