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Prognostic and clinicopathological effect of the prognostic nutritional index (PNI) in patients with cervical cancer: 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 07 September 2023 and was last updated on 07 September 2023.

INTRODUCTION

Review question / Objective Numerous studies have explored whether the prognostic nutritional index (PNI) can predict the prognosis of cervical cancer (CC); however, their findings remain controversial. This meta-analysis focused on evaluating the relationship between the PNI and the prognosis of patients with CC.

Condition being studied The Embase, PubMed, Cochrane Library, Web of Science, and China National Knowledge Infrastructure databases were systematically searched. Literature retrieval was updated on March 16, 2023. The relationship between the PNI and survival outcomes in patients with CC was estimated using combined hazard ratios (HRs) and associated 95% confidence intervals (CIs). The association of the PNI with clinicopathological features in patients with CC was assessed by combining odds ratios (ORs) and associated 95% CIs.

METHODS

Search strategy The search terms were as follows: (prognostic nutritional index OR PNI) AND (cervical carcinoma OR cervical neoplasm OR cervical cancer OR cervical tumor). There were no restrictions on publication language.

Participant or population CC was pathologically or histologically diagnosed.

Intervention Articles reporting the relationship of PNI with survival outcomes in patients with CC and cut-off values should be identified to divide low/high PNI.

Comparator CC patients with high PNI.

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

Eligibility criteria Patients included should satisfy the following criteria: (1) CC was pathologically or histologically diagnosed; (2) articles reporting the relationship of PNI with survival outcomes in patients with CC; (3) cut-off values should be identified to divide low/high PNI; (4) hazard ratios (HRs) and associated 95% confidence intervals (CIs) of survival outcomes should be available or calculable; and (5) available survival outcomes, such as overall survival (OS), progression-free survival (PFS), cancer-specific survival (CSS), and recurrence-free survival (RFS). Studies conforming to the following criteria were excluded: (1) reviews, letters, meeting abstracts, comments, and case reports; (2) duplicates; and (3) animal studies.

Information sources The Embase, PubMed, Cochrane Library, Web of Science, and China National Knowledge Infrastructure databases were systematically searched. Literature retrieval was updated on March 16, 2023. Additionally, we manually checked the reference lists and related reviews to identify potential inclusions.

Main outcome(s) OS and PFS.

Additional outcome(s) The association of the PNI with clinicopathological characteristics in patients with CC was evaluated through combining odds ratios (ORs) and 95% CIs.

Quality assessment / Risk of bias analysis The quality of the studies was evaluated using the Newcastle-Ottawa Quality Assessment Scale (NOS), which includes three aspects: selection, outcomes, and comparability, with a total score of 0–9. Studies with NOS scores ≥6 were considered to be of high quality. Begg's and Egger's tests were used to detect possible publication biases.

Strategy of data synthesis This study calculated pooled HRs and 95% CIs to estimate the relationship between the PNI and the survival outcomes of patients with CC. Heterogeneities among articles were assessed by I2 statistics and Cochran's Q test, with P heterogeneity 50% indicating obvious heterogeneity. Therefore, the random-effects model was applied to this condition; otherwise, the fixed-effects model was adopted.

Subgroup analysis Possible sources of heterogeneity were detected using subgroup analysis.

Sensitivity analysis None.

Language restriction No language restrictions were applied.

Country(ies) involved China.

Keywords cervical cancer; meta-analysis; prognostic nutritional index; prognosis; clinical practice.

Contributions of each author

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