INPLASY PROTOCOL

To cite: Wu et al. Prognostic and clinicopathological value of osteopontin expression in patients with non-small cell lung cancer: a meta-analysis. Inplasy protocol 202330026. doi: 10.37766/inplasy2023.3.0026

Received: 07 March 2023

Published: 07 March 2023

Corresponding author:
Lianghong Wu

wulianghong123@outlook.com

Author Affiliation:
Chengdu First People's Hospital.

Support: **None.**

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

Conflicts of interest:
None declared.

Prognostic and clinicopathological value of osteopontin expression in patients with non-small cell lung cancer: a meta-analysis

Wu, L[1]; Song, Y[2]; Li, HB[3]; Jiang, Q[4].

Review question / Objective: **To study the prognostic and clinicopathological value of osteopontin (OPN) expression in non-small cell lung cancer (NSCLC) patients.**
Condition being studied: **Lung cancer is the most common malignancy worldwide and is also the leading cause of death associated with malignancy. Non-small cell lung cancer (NSCLC) is the main pathological type of lung cancer. Because most NSCLC patients have late onset of symptoms, they are detected at an advanced stage, with a 5-year survival rate of less than 15%. Therefore, identifying an early diagnosis and prognostic assessment to improve the survival of NSCLC patients is necessary.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 March 2023 and was last updated on 07 March 2023 (registration number INPLASY202330026).

INTRODUCTION

Review question / Objective: **To study the prognostic and clinicopathological value of osteopontin (OPN) expression in non-small cell lung cancer (NSCLC) patients.**

Rationale: **A growing body of evidence has indicated that osteopontin (OPN), a secreted adhesive glycoprotein, is overexpressed in many different types of human cancers, including esophageal squamous cell carcinoma, hepatocellular carcinoma, gastric cancer, and prostate cancer. Studies have shown that OPN is not only expressed in epithelial cells and bone tissue but is also involved in the carcinogenesis process by inhibiting apoptosis and enhancing tumor cell survival. Although previous studies have**

shown the potential prognostic value of OPN in NSCLC, their conclusions have been inconsistent. Therefore, we designed and conducted the meta-analysis to assess the clinicopathological and prognostic significance of OPN expression in patients with NSCLC.

Condition being studied: Lung cancer is the most common malignancy worldwide and is also the leading cause of death associated with malignancy. Non-small cell lung cancer (NSCLC) is the main pathological type of lung cancer. Because most NSCLC patients have late onset of symptoms, they are detected at an advanced stage, with a 5-year survival rate of less than 15%. Therefore, identifying an early diagnosis and prognostic assessment to improve the survival of NSCLC patients is necessary.

METHODS

Search strategy: A systematic search was conducted through PubMed, EMBASE, and Cochrane Library until December, 6th 2022. The following keywords were used: "osteopontin" OR "OPN, "non-small cell lung cancer" OR "non-small cell lung carcinoma" (the detailed search strategy for each of the databases was presented in the supplementary materials). In addition, reference lists from included studies were also manually reviewed for additional relevant publications.

Participant or population: Patients with NSCLC were histologically or pathologically diagnosed.

Intervention: The higher expression of OPN in NSCLC patients.

Comparator: The lower expression of OPN in NSCLC patients.

Study designs to be included: No.

Information sources: A systematic search was conducted through PubMed, EMBASE, and Cochrane Library until December, 6th 2022. All data in this study were obtained from published journals, and no individual contact with the authors was made. This study was a meta-analysis and no registered clinical trial was required. No grey literature was included in this study.

Main outcome(s): Higher expression of OPN was significantly associated with worse OS in patients with NSCLC.

Additional outcome(s): A significant correlation was observed between increased OPN expression and poorly differentiated, lymph node metastasis , and distant metastasis in NSCLC.

Data management: All enrolled studies were independently evaluated by two investigators, and any disagreements were resolved through discussion with a third investigator. Data extraction included: first author, publication year, study region, study period, sample size, number of people by gender, tumor-node-metastasis (TNM) stage, treatment method, the detection method of OPN expression, cut-off determination method, survival analysis type, HRs, and 95% CIs. Where necessary, we applied digital techniques (version 4.1; http://blacktizer.sourceforge.net) to extract HR and 95% CI from survival curves.

Quality assessment / Risk of bias analysis: The Newcastle Ottawa Scale (NOS) was used to assess the quality of the included studies. And studies with a score of ≥6 were considered to be high-quality studies.

Strategy of data synthesis: The pooled HRs and 95% CIs were calculated to estimate the prognostic value of the OPN in patients with NSCLC. The OR represents the relationship between OPN expression and clinicopathological parameters. Statistical significance is expressed as a pooled P, and a $P< 0.05$ was considered statistically significant.

Subgroup analysis: To detect the source of heterogeneity, subgroup analysis stratified by study region, survival analysis types, the detection method of OPN expression, treatment method, and the sample size was performed.

Sensitivity analysis: Sensitivity analysis was used to check data stability, and Egger's test was used to detect publication bias.

Language restriction: English.

Country(ies) involved: China (Chengdu First People's Hospital).

Keywords: osteopontin, non-small cell lung cancer, prognosis, meta-analysis.

Contributions of each author:

Author 1 - Lianghong Wu - Author 1 drafted the manuscript.
Email: wulianghong123@outlook.com
Author 2 - Yu Song - The author provided statistical expertise.
Email: yuson9@yandex.com
Author 3 - Haibo Li - The author contributed to the development of the selection criteria, and the risk of bias assessment strategy.
Email: haiboli123@sohu.com
Author 4 - Qing Jiang - The author read, provided feedback and approved the final manuscript.
Email: qingjiang880216@163.com