

# INPLASY PROTOCOL

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**Conflicts of interest:**  
None declared.

## The D-dimer level predicts the prognosis in patients with lung cancer: A systematic review and meta-analysis

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**Review question / Objective:** This meta-analysis was performed to explore the beneficial role of plasma D-dimer as a prognostic factor in lung cancer patients according to a larger sample capacity.

**Condition being studied:** Lung cancer has become the most common malignant tumor and the leading cause of cancer death in the world. Activation of coagulation and fibrinolysis is usually associated with most malignant tumors, although the exact molecular mechanism remains incompletely understood. Previous studies have found that malignancy can affect the hemostatic system; however, the activation of the hemostatic system can influence the biological behavior of tumors. The coagulation and fibrinolysis system activation can accelerate the growth and invasion of tumor cells, thus affecting cancer progression. Lung cancer patients reveal an abnormal coagulation state, including venous thromboembolism (VTE). Tumor-induced thrombosis has a remarkable effect on the prognosis of patients with cancer.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 30 July 2021 and was last updated on 30 July 2021 (registration number INPLASY202170096).

### INTRODUCTION

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studies have found that malignancy can affect the hemostatic system; however, the activation of the hemostatic system can influence the biological behavior of tumors. The coagulation and fibrinolysis system activation can accelerate the growth and invasion of tumor cells, thus affecting cancer progression. Lung cancer patients reveal an abnormal coagulation state, including venous thromboembolism (VTE). Tumor-induced thrombosis has a remarkable effect on the prognosis of patients with cancer.

## METHODS

**Search strategy:** We performed a literature search through the following databases: Pubmed, Cochrane Central databases, Web of Science and EMBASE databases for studies published before January 2021. The strategy of keyword Search terms was as follows: “lung cancer,” “D-dimer,” and “prognosis”.

**Participant or population:** Patients with lung cancer.

**Intervention:** Treatment included surgery, radiotherapy, chemotherapy.

**Comparator:** No.

**Study designs to be included:** Cohort study.

**Eligibility criteria:** 1) study design: cohort study ; 2) participants: patients with lung cancer ; 3) primary outcomes: OS and PFS; 4) data: the necessary survival data must be provided, including hazard ratio (HR), 95% confidence interval (CI) and Kaplan–Meier curve; 5) full text is available.

**Information sources:** By following databases: Pubmed, Cochrane Central databases, Web of Science and EMBASE databases.

**Main outcome(s):** Overall survival (OS) and relapse-free survival (PFS).

**Additional outcome(s):** No.

**Data management:** The following data were performed by the two authors independently. The information should be extracted included:(1)author name, publication year, sample size, age, gender, median follow-up time; (2)disease stage, treatment approach, histology type, detection method, location;(3)the risk ratio (HR) and their associated 95% confidence interval(CI), The primary prognosis outcomes were OS and RFS. If the title and abstract cannot be classified, the full text should be read. Two authors (YH and GZ) evaluated the quality of studies independently if disagreement occurred, and the third investigator made the final agreed decision (LY).

**Quality assessment / Risk of bias analysis:** All studies were retrospective cohort studies, and we evaluated the quality based on the modified NOS scale.

**Strategy of data synthesis:** Heterogeneity was assessed with Chi-square and the I<sup>2</sup> index. A P-value>0.1 and I<sup>2</sup>< 50% were considered not statistically significant, and the fixed effects model was used. A P-value 50% was regarded as high heterogeneity. The random-effected model was chosen to pool the heterogeneous studies. Publication bias was used to assess by Begg’s funnel plot. We used STATA version 15.1 to perform the meta-analysis. All statistical tests were two-tailed, and P < 0.05 was set statistically significant.

**Subgroup analysis:** We conducted the subgroup by detection methods, Histological type, Disease stage, patients’ resources and treatments.

**Sensitivity analysis:** Sensitivity analysis is to remove each study in turn to observe whether to change the original overall analysis results, the results show that each study deleted in turn did not change the original results, indicating that the results are more reliable.

**Language:** English.

**Country(ies) involved:** China.

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**Keywords:** D-dimer, Prognosis, Lungcancer, meta.

**Contributions of each author:**

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