

INPLASY PROTOCOL

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Talc pleurodesis in malignant pleural effusions: a systematic review and meta-analysis

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Authors declare no conflict of interest.

Review question / Objective: Comparing the efficacy of talcum powder versus other methods in achieving pleurodesis in patients with malignant pleural effusions.

Condition being studied: Malignant pleural effusion is a common complication of advanced malignancy with a poor prognosis, associated with dyspnea and the resultant functional disability poses a significant management challenge.

Information sources: MEDLINE, Scopus, and Cochrane Library electronic databases.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 October 2020 and was last updated on 07 October 2020 (registration number INPLASY2020100021).

INTRODUCTION

Review question / Objective: Comparing the efficacy of talcum powder versus other methods in achieving pleurodesis in patients with malignant pleural effusions.

Rationale: Although talc pleurodesis appears to be one of the most commonly

used approaches in patients with MPEs and expandable lungs, there is still controversy in the literature regarding the efficacy of talc pleurodesis compared to alternative approaches.

Condition being studied: Malignant pleural effusion is a common complication of advanced malignancy with a poor

prognosis, associated with dyspnea and the resultant functional disability poses a significant management challenge.

METHODS

Search strategy: The following search algorithms have been used in each electronic database respectively: MEDLINE: (((malignant pleural effusion)) OR (pleural effusion)) AND talc) AND pleurodesis. Cochrane Library: "malignant pleural effusion" OR "pleural effusion" AND "talc" AND "pleurodesis" in (titles, keywords, abstracts). Scopus: "malignant pleural effusion" OR "pleural effusion" AND "talc" AND "pleurodesis".

Participant or population: Patients with malignant pleural effusions treated with talc pleurodesis compared with other sclerosants or other methods.

Intervention: Pleurodesis achieved utilizing medicated talcum powder, either thoroscopically or through an indwelling catheter.

Comparator: Pleurodesis achieved using chemical compounds like bleomycin, tetracycline, doxycycline, silver nitrate, povidone-iodine, mustine, or autologous blood. Pleurodesis achieved through mechanical methods as thoroscopic partial pleurectomy or abrasion. Drainage through indwelling pleural catheters (IPC).

Study designs to be included: Randomised Control Trials and Observational Prospective Studies.

Eligibility criteria: Two independent investigators reviewed relevant articles for inclusion and performed data extraction using a standardized data form. The inclusion criteria were: 1) Studies including patients with malignant pleural infusions 2) Studies including patients treated with talc pleurodesis compared with either sclerosing agents (chemical compounds like bleomycin, tetracycline, doxycycline, silver nitrate, povidone-iodine, mustine, or autologous blood) or other palliative methods. 3) Studies in English. 4) Human

randomized control trials and observational prospective studies.

Information sources: MEDLINE, Scopus, and Cochrane Library electronic databases.

Main outcome(s): Successful Pleurodesis: no fluid reaccumulation in radiography or no need for further pleural intervention until the end of follow-up or death.

Quality assessment / Risk of bias analysis: Quality assessment: Newcastle-Ottawa scale for non-RCTs and Jadad Scale for RCTs. Risk of Bias: Funnel Plots, Egger test.

Strategy of data synthesis: The minimum number of studies required for the analysis to give further insight into the original data, was predefined to be three. The pooled risk ratios (RR) will be calculated based on the reported numbers of successful pleurodesis in the talc and control groups. Based on the identified heterogeneity, random ($I^2 > 50\%$) or fixed ($I^2 < 50\%$) effects model will be used.

Subgroup analysis: Subgroup analysis will be performed according to the time of follow up (less than one month or more than one month), method of control pleurodesis, type of cancer.

Sensibility analysis: Sensitivity analysis will be performed based on the meta-analysis method implemented.

Country(ies) involved: Greece, UK.

Keywords: Talc pleurodesis, chemical pleurodesis, IPCs, malignant pleural effusions, meta analysis.

Contributions of each author:

Author 1 - Eleftherios Beltsios - Performed literature search, data extraction and statistical analysis. Will be drafting the manuscript.

Author 2 - Georgios Mavrovounis - Performed literature search, data extraction and statistical analysis. Will be drafting the manuscript.

Author 3 - Antonis Adamou - Performed statistical analysis, will be drafting the manuscript.

Author 4 - Nikolaos Panagiotopoulos - Conceptualization and supervision of the project, will be drafting the manuscript.