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EFFECT OF THORACOSCOPIC TALC POUDRAGE VS. TALC SLURRY VIA CHEST TUBE ON PLEURODESIS FAILURE RATE AMONG PATIENTS WITH MALIGNANT PLEURAL EFFUSIONS. A RANDOMIZED CLINICAL TRIAL

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THE CLINICAL QUESTION

Is thoracoscopy performed with local anesthesia with talc poudrage more effective than a small bore-chest tube with talc slurry at inducing pleurodesis in patients with malignant pleural effusion (MPE)?

CONCLUSION

In patients with MPE, there is no significant difference in pleurodesis failure rates between thoracoscopic talc poudrage compared with talc slurry delivered via a small-bore chest tube.

BACKGROUND

- When diagnosed, the management of MPE remains palliative in nature. Median survival after diagnosis is highly dependent on the type of malignancy, but it can be as short as three to 12 months.
- In patients with known (or suspected) expandable lung, a common therapeutic endpoint is achieving pleurodesis. The apposition of the two pleural surfaces is needed for pleurodesis, which may not be achievable in a non-expandable lung. There is no strict definition of a non-expandable lung. One definition is the apposition of the lung to <50% of the lateral chest wall on chest radiographs.
- There are a variety of ways to achieve pleurodesis, including the local installation of talc. There is no consensus on whether talc poudrage or talc slurry is more effective in attaining pleurodesis in patients with MPE. This study helps to answer that question.
- Based on the latest American Thoracic Society, Society of Thoracic Surgeons, and Society of Thoracic Radiology joint clinical practice guideline, either chemical pleurodesis or an indwelling pleural catheter is recommended as the first-line definitive intervention for management of dyspnea in patients with symptomatic MPE with known or suspected expandable lung.
- The same document suggests that either talc poudrage or slurry can be used to achieve chemical pleurodesis, there is no universal recommendation for one modality overanother.

STUDY DESIGN

- Open-label randomized (1:1) clinical trial that enrolled patients from 17 hospitals across the United Kingdom into two study groups: talc poudrage or talc slurry
- Poudrage group: Patients underwent a thoracoscopy under local anesthesia with complete drainage and inspection of the chest cavity with subsequent insufflation of 4gm of dry sterile, graded talc power with a view to achieving pleural coverage
- Slurry group: Patients had a 12-14 Fr chest tube inserted with ultrasound guidance followed by a chest radiograph performed 18-24 hours after drainage, 4 gm of sterile talc slurry was delivered through the chest tube
- Patients were followed for 180 days post-randomization or death
- Primary outcome was pleurodesis failure at 90 days after randomization (measured as the need for a post-intervention thoracentesis, chest tube for fluid management, pleural catheterization, or thoracoscopy of any kind)

POPULATION

Inclusion criteria:

- Adults >18 years of age with a confirmed MPE who could undergo thoracoscopy with local anesthesia

Exclusion criteria:

- Evidence of non-expandable lung
- Need for diagnostic thoracoscopy

Baseline characteristics:

- Poudrage group: n = 166, mean age 68 years, women 58%, current or former smoker 70%, WHO status 0 or 1 60%, underlying lung cancer 36%, patients included in primary analysis = 161
- Slurry group: n = 164, mean age 68 years, women 52%, current or former smoker 67%, WHO status 0 or 1 60%, underlying lung cancer 33%, patients included in primary analysis = 159

OUTCOMES

Primary outcome

Pleurodesis failure at 90 days after randomization

- Twenty-two percent (36/161) failure in the poudrage group
- Twenty-four percent (38/159) failure in the slurry group

Secondary outcomes: No statistically significant differences in the rates of pleurodesis failure at 30 days post-randomization, pleurodesis failure at 90 days post-randomization, number of nights spent in-hospital within 90 days of randomization, and all-cause mortality up to 180 days post randomization between the two groups

Adverse events:

- No deaths attributable to either trial intervention
- Pneumonia/chest infection was the most common complication in the poudrage group (25)
- More cases of pleural infection noted in the poudrage group (6) than the slurry group (0)
- Chest tube dislodgement/unintentional removal more common in the slurry group (9 vs. 2)

COMMENTARY

Strengths: Large sample size for the study question, randomization was performed with mitigation of important factors such as type of malignancy and WHO performance status, opens the potential for future MPE pleurodesis cost-effectiveness research

Limitations: Exclusion of patients who were too frail to undergo medical thoracoscopy, open-label design, underpowered to detect smaller differences that may be clinically relevant, follow up period (180 days) may be too short for patients with an underlying malignancy with longer median survival times

Both talc slurry via small-bore chest tube and talc poudrage via medical thoracoscopy
with local anesthesia have similar rates of achieving pleurodesis in patients with MPE. Choosing between the two modalities should be based on factors such as patient preference, local practice pattern, and need for additional diagnostic information (i.e., diagnostic medical thoracoscopy prior to poudrage).

FUNDING

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SUGGESTED READING

Asciak R, Rahman NM. Malignant Pleural Effusion: From Diagnostics to Therapeutics. Clin Chest Med. 2018;39(1):181-93.2.

Clive AO, Jones HE, Bhatnagar R, Preston NJ, Maskell N. Interventions for the management of malignant pleural effusions: a network meta-analysis. Cochrane Database Syst Rev. 2016(5):CD010529.

Reddy CB, DeCamp MM, Diekemper RL, Gould MK, Henry T, Iyer NP, et al. Summary for Clinicians: Clinical Practice Guideline for Management of Malignant Pleural Effusions. Ann Am Thorac Soc. 2019;16(1):17-21.

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