

EFFECT OF PLEURODESIS WITH 10% BETADINE IN A TERTIARY CARE CENTRE, MAHABUBNAGAR, TELENGANA

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ABSTRACT: BACKGROUND: Tetracycline, talc, bleomycin have been proved to be effective in recurrent spontaneous pneumothorax and malignant pleural effusion. Recent studies have shown the efficacy of 10% betadine in pluerodesis. **OBJECTIVE:** The study was conducted in S.V.S. Medical College, Mahbubnagar Dist., Telengana during the period of May 2013 to February 2015 to find out the success rate of 10% betadine in pleurodesis in patients with recurrent spontaneous pneumothorax and malignant pleural effusions. **MATERIALS AND METHODS:** Patients with malignant pleural effusion and recurrent spontaneous pneumothorax were taken into consideration. 10% betadine with xylocaine was used in this study. **RESULTS:** Totally 26 patients underwent pleurodesis. 18 patients had malignant pleural effusion and 8 patients had recurrent spontaneous pneumothorax. Out of 26 patients, 23 patients had successful pleurodesis 88.5% 16 out of 18 patients 88.9% with malignant pleural effusion had successful pleurodesis and 7 out of 8 patients 87.5% with recurrent spontaneous pneumothorax had successful pleurodesis. **CONCLUSION:** In our observation, we have seen that pleurodesis with 10 % betadine is very effective and inexpensive in pleurodesis without much complications.

KEYWORDS: Betadine, pleurodesis, malignant pleural effusion.

INTRODUCTION: Pleurodesis is a procedure to achieve symphysis between the two layers of pleura aimed at preventing accumulation of either air or fluid in the pleural space.¹ It is usually done in recurrent malignant effusions and recurrent pneumothoraces. Pleurodesis can be achieved by either a chemical agent or by physical abrasion of the pleural surfaces during thoracotomy or thoracoscopy.

Various agents are used but no agent till now is considered to be an ideal agent for pleurodesis. Talc till now is considered to be the most effective agent for chemical pleurodesis in both spontaneous pneumothorax and malignant effusion.^{2,3}

Betadine is being used for pleurodesis from the year 1991,⁴ and various studies are going on to prove efficacy of 10% betadine.⁵⁻⁸ The study was conducted to know the efficacy of pleurodesis with 10% betadine for recurrent malignant pleural effusions and recurrent pneumothoraces.

Inclusion Criteria:

- Diagnosed with primary malignancy.
- Recurrent symptomatic malignant effusion.
- Recurrent spontaneous pneumothorax.
- Evidence of complete expansion of lung after drainage of air /fluid.
- Absence of bronchial obstruction.

Exclusion Criteria:

- Cardiac disease.
- Trapped lung.
- Loculated effusions.

MATERIAL AND METHODS: The study was conducted in S.V.S. Medical College, Mahbubnagar Dist., Telengana during the period of May 2013 to February 2015. A total of 26 patients were included in the study of which 18 malignant pleural effusions and 8 recurrent pneumothorax.

An informed consent was taken explaining the complete procedure with side effects. NSAIDs and other anti-inflammatory drugs were stopped 24hrs prior to pleurodesis and 12 hrs after the procedure. An ICD was inserted in these patients. Pleurodesis was done in patients with drain less than 100 ml and in absence of air leak, and chest x-ray showing complete expansion of lung.

Distal end of tube was clamped and 20 ml of 2% xylocaine was injected into the pleural cavity through ICD, percussion was done while changing patient to different positions. Then 50 ml of 10% betadine mixed with 20-30 ml of Normal saline was injected. Then percussion was done changing patient to different positions. Then ICD was kept clamped for 6 hrs. Following an USG chest & X-ray was done after releasing the clamp and repeated after 7 days. The response to this procedure, treatment failure and the complaints of the patients were evaluated.

RESULT: A total of 26 patients were studied. The mean age of patients was 63.6±5 [45-80] years. Twenty one patients (80.8%) were men and 5(19.2%) were women. The most common primary diseases were lung cancer (n=10, 55%) followed by breast cancer (n=4, 22%), lymphoma (n=2, 11%), gastric cancer (n=2, 11%). The involved side in 20 patients (77%) was the right side, 6 patients (23%) was the left side.

Twenty three patients (88.5%) achieved confirmed complete response, while 3 patients (11.5%) failed pleurodesis. In sixteen Malignant pleural effusion pleurodesis was successful (n=16, 88.9%) and two cases (n=2, 11.1%) was unsuccessful while in the recurrent pneumothorax seven (n=7, 87.5%) was successful and one (n=1, 12.5%) unsuccessful.

Complications associated in this study was less, only complained of pain. One patient with pneumothorax complained of severe pain in whom injection Tramadol was given. Also, there was not any mortality or morbidity due to the use of betadine in this study.

DISCUSSION: Chemical pleurodesis is the procedure of choice in the management of recurrent pleural effusions,⁹ and a recognized treatment option in the management of patients with primary or secondary spontaneous pneumothorax.¹⁰ The question is the choice of the sclerosing agent, which is determined by the efficacy of the agent, its cost, accessibility, safety, ease of administration and the number of administrations needed to achieve a complete response.

The precise mode of action of iodopovidone remains unclear.¹¹ It may be related to the low pH (pH 2.97) of the sclerosing solution, or to the strong oxidative and cytotoxic properties of iodine, which can induce a potent inflammatory response.

Agarwal et al.⁷ obtained complete response rate of 86.5% in pleural effusion group and 92.6% in pneumothorax group with povidone-iodine in a study including 37 patients with pleural effusion and 27 patients with pneumothorax.

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In a review of six studies, 265 patients underwent chemical pleurodesis with povidone-iodine, and the mean success rate was 90.6%. In this meta-analysis, pleurodesis with povidone-iodine was performed for recurrent pleural effusion in 157 patients and pneumothorax in 108 patients.⁸

Agarwal et al.⁸ reported that all the patients in their study experienced chest pain and noted that the only clinically important side effect of povidone-iodine was pain and chemical pleurodesis did not cause death in these patients. The other side effects reported were fever in seven patients and empyema in one patient.

The results of the present study affirm that 10% Betadinepleurodesis is associated with high success rates, with efficacy rate of 89 and 88 per cent in pleural effusions and pneumothoraces, respectively. There were no serious adverse events including ARDS or deaths associated with the procedure.

CONCLUSION: In conclusion this study supports iodopovidone as an effective, inexpensive, safe, feasible agent for chemical pleurodesis in patients with pleural effusions and recurrent pneumothoraces.

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