

KARŞIT GÖRÜŞ (PRO-CON): TALK KÖTÜDÜR (TALC IS NOT GOOD FOR PLEURODESIS)

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I last wrote an editorial on the use of talc for pleurodesis in 2002 and concluded that talc should not be used for pleurodesis because it caused the adult respiratory distress syndrome (ARDS) (1). At that time there had been at least 42 cases of the ARDS reported, 24 after the use of talc slurry and the remaining 18 after talc insufflation. Eleven of these 42 patients died from the ARDS (1). Autopsies demonstrated that talc was distributed throughout the body (2). The development of the ARDS appeared independent of the amount of talc given. Moreover, the evidence supporting the contention that talc was superior to other agents was lacking.

Since this previous editorial, there have been many articles concerning the use of talc for pleurodesis. Lee and coworkers (3) reported that talc was the agent most commonly used for pleurodesis in English speaking countries. The systemic effects of talc are greater than the systemic effects of the tetracycline derivatives. Maskell and coworkers (4) randomized 20 patients with malignant effusions to intrapleural tetracycline or mixed talc (most talc particles <15 µm). They reported that the group that received the mixed talc had a significantly greater decrease in the arterial oxygen saturation, a significantly greater increase in the C-reactive protein and a significantly greater increase in the lung clearance scans of the opposite lung.

Following intrapleural talc, there has been a wide variation in the incidence of ARDS from country to country. There is a wide variation in the size of talc particles from country to country and those countries with the highest incidence of

ARDS following talc tend to use talc with a smaller mean particle size (4). This led to the hypothesis that small talc particles were responsible for the ARDS. Maskell and coworkers (5) provided support for this hypothesis when they randomized 48 patients to receive mixed talc (most talc particles <15 µm) or graded talc (most particles < 10 µm removed). They reported that with the mixed talc there was a significantly greater increase in the alveolar to arterial oxygen gradient, a significantly greater decrease in the arterial PO₂ and a significantly greater increase in the C-reactive protein.

Talc does not appear to be as effective as was previously thought. Dresler and associates (6) in the largest controlled study on pleurodesis randomized 486 patients to receive 4 to 5 grams of talc, either administered as a slurry in 100 ml saline through a chest tube or insufflated during thoracoscopy. The results of this study were much inferior to those reported in smaller uncontrolled studies. Of the 340 patients whose lungs were more than 90% expanded and who received talc intrapleurally, only 211 (62%) were alive without recurrence at 30 days (6). Moreover, in the patients that were alive, 29% had a recurrence at 30 days and after that time the recurrences continued to occur. Eleven patients died of respiratory failure including 4% of those who received talc slurry and 8% of those who received talc insufflation (6). Aydogmus and associates (7) from Turkey recently reported their results with the administration of 4 to 8 grams of talc slurry to 73 patients whose lungs completely expanded after chest tube insertion. They reported that

only 60 of the 73 patients (82%) were classified as having a successful treatment three weeks post procedure. Two patients died from ARDS (7). The size of the talc particles was not mentioned in either of the above two studies.

One recent study (8) purportedly demonstrated that large particle talc is safe when used for pleurodesis. This prospective study assessed the side effects pleurodesis attempted with 4 grams of insufflated talc at thoracoscopy in 558 patients. They used graded talc with a mean particle size of 24.5 µm. They reported that none of the patients developed ARDS after the procedure although seven patients developed new infiltrates on their chest radiographs. They attributed the new pulmonary infiltrates to pulmonary edema in 1, reexpansion pulmonary edema in 2, respiratory failure not due to ARDS in 1, pulmonary embolus 1, and sepsis 1. I am not convinced that the respiratory failure and the reexpansion pulmonary edema did not represent ARDS. Moreover, they did report a significant increase in the temperature which lasted up to four days and a significant increase in the use of supplemental oxygen post procedure.

In conclusion, ARDS occurs in approximately 1% of all patients who receive talc intrapleurally. The incidence of ARDS may be less in patients who receive graded talc. If talc is used for pleurodesis, only graded talc with a large mean particle size should be used. However, since the results with talc (~80% success rate) do not appear to be significantly better than those with the tetracycline derivatives, I do not recommend talc. . If parenteral tetracycline preparations are unavailable, the capsules or tablets of the tetracycline derivatives can be dissolved in saline and used for pleurodesis after they are processed through a filter (9). Alternatives to tetracycline derivatives include silver nitrate and iodopovidone. In Brazil, clinical studies have shown

that 20 ml of 0.5% silver nitrate is as effective as talc in producing pleurodesis (10). It has also been demonstrated that 100 ml of 2% iodopovidone (Betadine) is effective in producing a pleurodesis (11).

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