Conservative versus interventional treatment for spontaneous pneumothorax


SUMMARY:
- The Primary Spontaneous Pneumothorax (PSP) trial is a prospective, randomized, open-label, noninferiority trial conducted at 39 hospitals in Australia and New Zealand.
- Patients were eligible for the trial if they were between 14 and 50 years of age with a unilateral spontaneous pneumothorax of ≥32%. Because size was measured with the Collins method, the intrapleural distance measured at 3 different locations added up to >6 cm.
- Patients were assigned to either interventional management of the pneumothorax with a small-bore (≤12 French) chest tube or conservative management with a 4-hour observation and no intervention; the noninferiority margin was set at 9%.
- All tubes were attached to suction, and the patient could be discharged home if the lung had reexpanded by 1 hour and remained fully expanded after the tube had been clamped for a 4-hour observation period. Patients who did not show reexpansion or who had recurrence were admitted.
- In the control group, participants were observed for a minimum of 4 hours and were discharged if they were comfortable. Crossover was allowed for persistent severe pain, shortness of breath, inability to walk, worsened chest X-ray results, or clinical deterioration.
- The primary outcome was radiologic resolution of pneumothorax at 8 weeks.
- Over 6 years, the authors enrolled and randomized 316 patients and examined 8-week outcome data for 272 patients.
- Reexpansion at 8-weeks was observed in 98.5% of the intervention group vs 94.4% of the control group; the absolute difference was 4.1%, and the lower boundary of the 95% CI was <9%.
- The authors provided per-protocol data, and the numbers were highly similar.
- Other findings included that the median time until radiographic resolution was better in the intervention group (16 days vs 30 days); complete resolution of symptoms at 8 weeks was slightly better in the conservative group (94.6% vs 93.4%); recurrence within 12 months was more common in the intervention group (16.8% vs 8.8%); and adverse events were more common in the intervention group.
- Study limitations include some crossover (but per-protocol analyses held), a potential for selection bias because the sample was not consecutive, the use of a disease-oriented primary outcome, and, most importantly, a high rate of patients lost to follow-up in both groups.

PMID: 31995686

EDITOR'S COMMENTARY: In this randomized multicenter trial, the authors provide modest evidence that conservative management for moderately sized spontaneous pneumothorax appears noninferior to chest tube and has a lower risk of adverse events. The findings were not robust enough to hold up to sensitivity analyses for missing data, so although you should not change your approach wholesale, these findings should open the door for shared decision-making and discussions with CT surgery about optimal management strategies.