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Abstract

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Comparative Effect of Lung volume reduction surgery for Emphysema and Bronchoscopic lung volume reduction with valve placement: the CELEB trial

Introduction: Lung volume reduction surgery (LVRS) and bronchoscopic lung volume reduction (BLVR) with endobronchial valves (EBVs) improve lung function, exercise capacity and quality of life in appropriately selected patients with emphysema. However, there are no direct comparison data to aid decision-making in people who are suitable for both.

Aims and objectives: We sought to investigate if LVRS is superior to BLVR over 12 months.

Methods: The CELEB study was a randomised controlled single-blind superiority trial, comparing LVRS outcomes at 1 year with BLVR, assessed using the iBODE score, a composite disease severity measure, which includes body mass index, airflow obstruction, dyspnoea, and exercise capacity (incremental shuttle walk test).

Results: Eighty-eight patients (48% female, mean(\pm SD) age 64.6 \pm 7.7, FEV₁%predicted 31.0 \pm 7.9) were randomised to either LVRS (n=41) or BLVR (n=47). At 12 months follow up, both groups improved to a similar extent, with neither the improvement in the i-BODE composite score (LVRS: -1.10 (1.44), BLVR: -0.82 (1.61) p=0.54) nor any of its individual components differing between the two treatment groups. Both treatments produced similar reductions in gas trapping; RV% predicted (LVRS -36.1 (-54.1, -10), BLVR: -30.5 (-59.0, -9) p=0.91). Survival did not differ between treatment groups, with one death in each arm, over the 12 months (EBV: 3 months, LVRS: 6 months).

Conclusion: In patients who are considered to be suitable for both treatments, we found no evidence that outcomes following LVRS were superior to BLVR.