THE COST-EFFECTIVENESS OF TEMPERATURE-CONTROLLED LAMINAR AIRFLOW IN UNCONTROLLED SEVERE ASTHMA

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INTRODUCTION

Current guidelines for patients with uncontrolled severe asthma already on maximal inhaled treatments recommend addition of biologics in preference to oral steroids. Temperature-controlled Laminar Airflow (TLA), now recommended by Swedish authorities, is an effective, safe and cost-attractive alternative (1). A recent study (2) in patients with severe asthma failed to show effect on exacerbations and cost-effectiveness, mainly driven by a smaller response among the less symptomatic patients. The objective of this post-hoc study was to investigate the effect of TLA over placebo (PBO) on severe exacerbations and cost-effectiveness in the more symptomatic patients.

METHODS

The one-year placebo-controlled, double-blind trial (2), including 216 patients with ACQ data, was re-analysed for effects on exacerbation rates and cost-effectiveness by baseline markers of asthma control. To define the more symptomatic patients, ACQ>3 and EQ5D-VAS≤65 (approximate median values) were used as cut-points. Negative binomial regression was used for analysis of severe exacerbations and Mixed Model for Repeat Measures (MMRM) was used for EQ5D-5L utility data.

RESULTS

The ACQ>3 (N=93) and EQ5D-VAS≤65 (N=137) sub-groups showed a trend for greater treatment effects with a 33% (p=0.083) and 31% (0.073) reduction, respectively, in severe exacerbations in favour of TLA. Total AQLQ improved 0.31 (p=0.085) and 0.33 (p=0.034) score units with AQLQ and EQ5D-VAS, respectively, as covariates. These results are consistent with another 12-month study (3). The difference in overall quality-of-life (EQ5D-5L) scores between TLA and placebo in more symptomatic patients was significant (0.10, p=0.046) (Figure 1) resulting in an incremental cost-effectiveness ratio (ICER) of around £20,000, which is within the NICE-acceptable range (<£30,000 per Quality-Adjusted Life-Year (QALY) gained) (Figure 2).

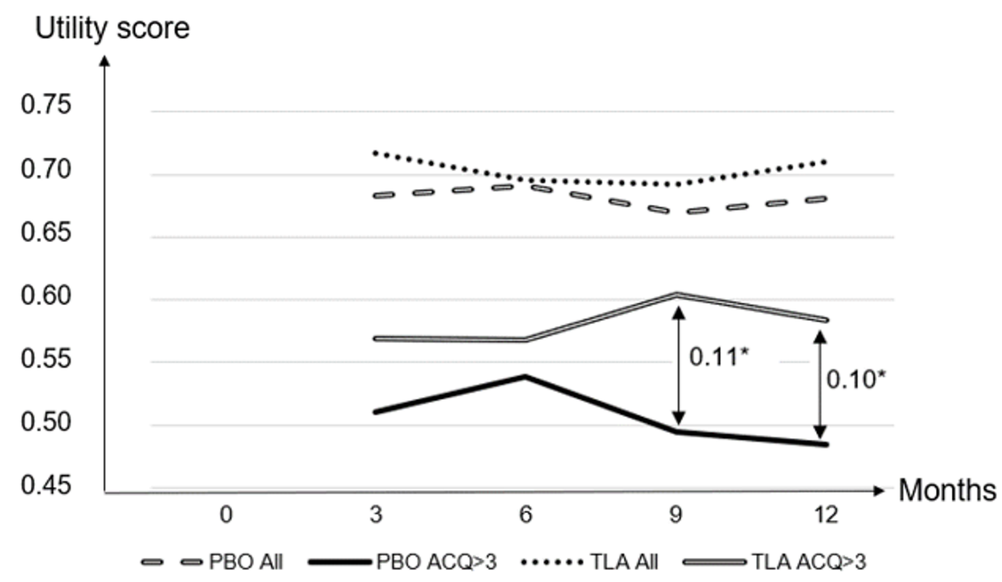

Figure 1. Utility scores by timepoint from the full study and the sub-group ACQ7>3: MMRM analyses using baseline values as covariate.

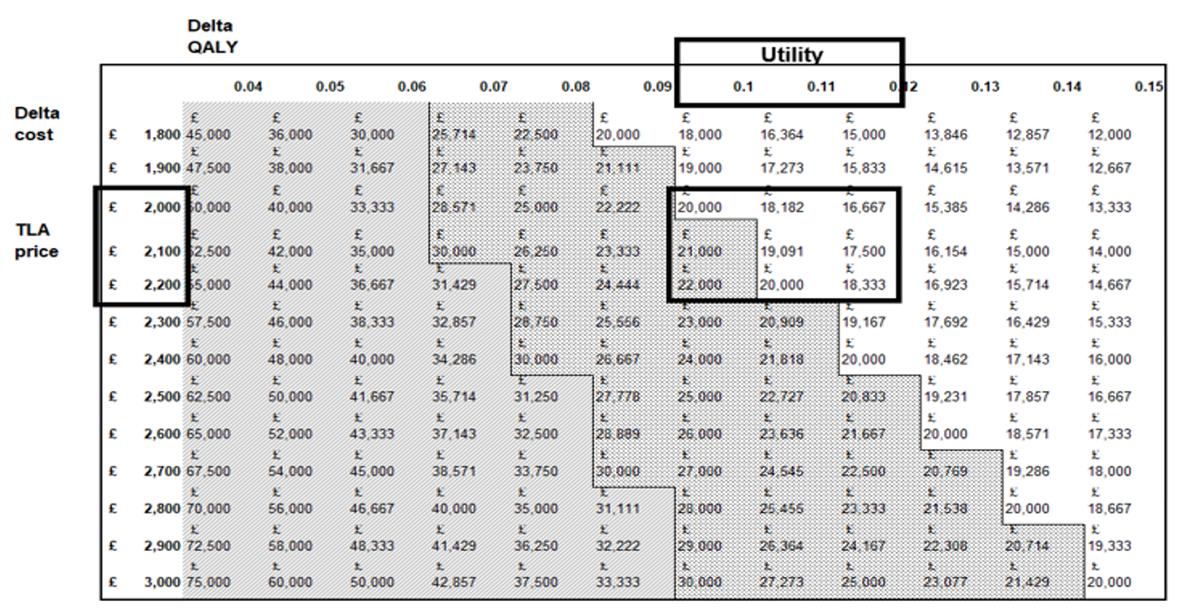

Figure 2. Cost-effectiveness grid over the incremental cost-effectiveness ratio (ICER) estimates for TLA. The utility scores for TLA at 9 and 12 months are shown on the Delta QALY-axis (rectangle) and the TLA price is shown on the Delta cost-axis (rectangle), resulting in a cost-effectiveness (ICER) for TLA of about 17 000-22 000 £.

CONCLUSIONS

The magnitude of treatment effect for TLA is much more pronounced in more symptomatic severe asthma patients and TLA is shown to be cost-effective in this sub-group population.

References

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