

Results Participants were allocated to vitamin D₃ vs. placebo in equal numbers; 82% were vitamin D insufficient at baseline. Vitamin D₃ supplementation did not influence time to first severe exacerbation (aHR 1.02, 95% CI 0.69–1.53, P = 0.91) or time to first URI (aHR 0.87, 95% CI 0.64–1.16, P = 0.34). The influence of vitamin D₃ on co-primary outcomes was not modified by baseline vitamin D status or genotype. Of 16 pre-specified secondary outcomes, only one showed a difference between arms: vitamin D supplementation induced a modest improvement in respiratory quality of life as evidenced by a reduction in mean total score for the St George's Respiratory Questionnaire at 2 months (-3.9 points, p = 0.005), 6 months (-3.7 points, p = 0.038) and 12 months (-3.3 points, p = 0.060).

Conclusions Vitamin D₃ supplementation did not influence time to exacerbation or URI in a population of adults with ICS-treated asthma with a high prevalence of baseline vitamin D insufficiency.

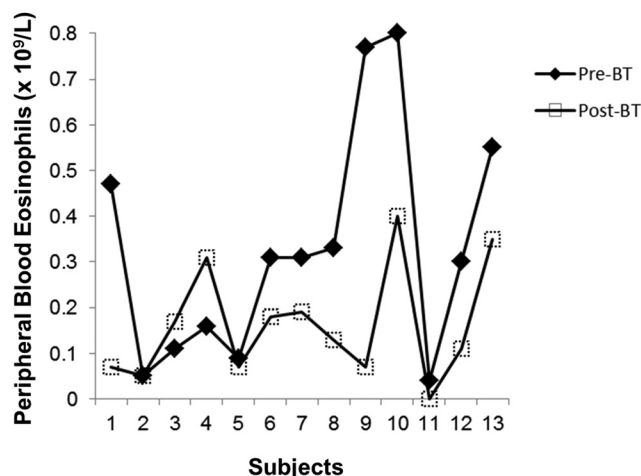
S96 BRONCHIAL THERMOPLASTY REDUCES PERIPHERAL BLOOD EOSINOPHILS IN SEVERE ASTHMA DEMONSTRATING SYSTEMIC EFFECTS OF A LOCALISED THERAPY

DM Ryan, LJ Holmes, G McCumesky, RD Daly, K Hince, G Tavernier, S Fowler, RM Niven. University Hospital South Manchester, Manchester, UK

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Introduction Severe Asthma, characterised by persistent symptoms despite maximal medical therapy, represents 5% of asthma cases. Bronchial Thermoplasty (BT) is a novel therapy, NICE approved for Severe Asthma patients uncontrolled despite step 4/5 of British Guideline on Asthma Management. BT delivers radiofrequency thermal energy to airways distal to the mainstem bronchi, permanently reducing airway smooth muscle mass. It is unknown whether treatment of smooth muscle hypertrophy impacts persistently upon systemic signs of allergic inflammation. Peripheral blood eosinophils (PBEs) are a marker of allergic inflammation in asthma. We asked: does BT modify signs of allergic inflammation as measured by PBEs and if so, does this effect persist over time?

Method A retrospective review of 15 consecutive Severe Asthma cases treated with BT was performed. Serial PBEs measured



Abstract S96 Figure 1

before and up to 1 year after BT were compared. Blood eosinophil levels taken peri-procedure were excluded from analysis due to standard protocol concomitant steroid therapy. For time to first detectable high PBE all available post-BT PBE levels were assessed.

Results 13 patients had PBE data before and after BT, with an average of 9 and 12 serial PBE levels pre and post-BT respectively. Mean PBE 1 year pre-BT was $0.33 \times 10^9/L$ falling to a mean of $0.16 \times 10^9/L$ 1 year post-BT (p < 0.05) (see Figure). 9 of 13 patients had a fall in mean PBE, in 2 of 13 levels rose and 1 of 13 mean PBEs were unchanged post-BT. In 6 patients who converted from normal to high PBE post-BT, average time to first high PBE ($>0.4 \times 10^9/L$) was 7 months (range 1–13 months). In 5 patients (38%) PBE remained within normal range persistently post BT.

Conclusion Severe Asthma patients undergoing BT had a significant reduction in average peripheral blood eosinophil levels from baseline. In over 1/3 of cases this effect was persistent 1 year post procedure. These findings support the concept that BT not only reduces asthma-associated smooth muscle hypertrophy but impacts upon systemic markers of allergic inflammation.

Mechanistic insights in acute lung injury

S97 LONG TERM SURVIVAL IN PATIENTS WHO UNDERGO OESOPHAGECTOMY IS LOWER IN PATIENTS WHO DEVELOP POST-OPERATIVE ACUTE RESPIRATORY DISTRESS SYNDROME

¹RCA Dancer, ¹D Parekh, ²GD Perkins, ¹DR Thickett. ¹University of Birmingham, Birmingham, UK; ²University of Warwick, Coventry, UK

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Oesophagectomy is a complicated procedure with high risk of complications in the immediate post-operative period. We have previously shown that patients undergoing oesophagectomy have ~ 25% risk of Acute Respiratory Distress Syndrome (ARDS) post op. Post-operative complications have been shown to decrease long term post-operative survival following major surgery.¹We hypothesised that long term survival would be reduced in patients who develop ARDS post oesophagectomy.

We analysed data from 55 patients recruited to the translational sub-study of the BALTI prevention trial. 26 of the 55 patients (47%) died within 2 years of their operation.

Patients who died within two years of their oesophagectomy were more likely to have required ventilation for ARDS during their hospital admission. In addition, patients who survived less than two years were more likely to have developed a surgical complication (e.g. anastomotic leak, wound infection, chyle leak) post-op. There was no difference in age, lung function, BMI or cancer staging. Patients who did not survive more than 2 years post-op were more likely to be smoking at the time of the operation, but there was no difference in pack year smoking history between the two groups.

Perioperative markers of alveolar epithelial damage (PICCO EVLWI and PVPI), and the severity of both local (BAL CRP) and systemic inflammation (IL-17, ICAM-1, and TNFR-1/2) were associated with outcome.

In conclusion, complications during recovery from oesophagectomy have an adverse effect on the chances of long term survival. Development of strategies to reduce post-operative morbidity may improve long term outcomes.