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 prespecified 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 = 0.60).

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.

Mechanistic insights in acute lung injury

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. We 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 TNFRI-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.