Methods

Large EVs, and small EVs were isolated from media from non-smoker (NS) and COPD fibroblasts cultured with or without $H_2O_2$. EVs were labelled with phk67 and uptake measured by flow cytometry. Healthy recipient fibroblasts were cultured with EVs or EV-free media for 24h and 48h and protein expression of p21CIP1 and αSMA measured using western blots and CXCL8 release by ELISA.

Results

There was a time-dependent uptake of EVs into recipient cells with no difference between EVs from control or COPD fibroblasts with 91.8 ± 3.8% of recipient cells phk67 positive by 48h (n=4). Incubation of recipient fibroblasts (n=2–5) with large EVs from either non-smokers or COPD subjects did not alter the expression of p21CIP1 or αSMA at 24h. Similarly large EVs from fibroblasts exposed to $H_2O_2$ had no effect on these markers in recipient cells. By contrast, at 48h (figure 1), small EVs from COPD cells showed a trend to increased expression of p21CIP1 and EVs from both non-smokers and COPD subjects increased expression of αSMA. Incubation of recipient cells with large EVs from non-smoker fibroblasts that had been cultured with or without $H_2O_2$ increased release of CXCL8 (0.36±0.15ng/ml to 5.43±3.92ng/ml and 5.44±5.23ng/ml respectively) and small EVs from COPD fibroblasts induced CXCL8 release at 48h (0.36±0.15ng/ml to 3.75±3.16ng/ml).

Conclusions

Large and small EVs tend to increase the expression of p21CIP1 and αSMA in recipient fibroblasts. These results are confirmed by the uptake analysis showing that maximum uptake of EVs from both NS and COPD fibroblasts is reached after 48h. Altogether, these data suggest that EVs participate in COPD pathophysiology by spreading senescence in recipient fibroblasts.

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CAT total score distribution at a) baseline (V1) and b) after 6 months (V3) The CAT total score is the sum of its single items and ranges between 0 (best possible condition) to 40 (worst possible condition). If one item is missing CAT cannot be calculated. CAT ranges for assessment of impact level of COPD on patient’s life were predefined: >30, very high impact; 21–30, high impact; 10–20 medium impact; and <10, low impact. Number of patients at V1, n=72; number of patients at V3, n=76.
Results A total of 100 patients were enrolled, 94 patients were included in the safety analysis and full analysis sets; 76 (80.9%) patients completed the study and 91.8% planned to continue BDP/FF/G.

In the six months prior to enrolment, 69 patients (73.4%) were treated with ICS/LABA/LAMA (fixed or open inhaled triple therapy combinations); 12 (12.8%) and 13 (13.8%) patients were treated with ICS/LABA or LAMA/LABA, respectively.

After six months treatment with BDP/FF/G CAT total score improved from 23.7 to 21.0 (figure 1); a significant mean change from baseline of -3.6 (P<0.0001); 66.7% of patients were CAT responders (score improvement ≥2 between V1-V3).

All CAT items improved significantly from V1-V2; mean change in CAT total score at V2 was -4.7, P<0.0001. An improvement in adherence was observed; mean change in TAI domain score V1-V2 of 0.7 (P=0.0126), and a positive trend between V1-V3 of 0.6 (P=0.1159).

Conclusion TriOptimize-UK has demonstrated a positive impact of Trimbow® in patients with poorly-controlled COPD, with significant improvements in HRQoL and the potential to enhance treatment adherence, important for long-term disease control and outcomes.

Please refer to page A292 for declarations of interest related to this abstract.

Introduction and Aims Reports suggest over 50% of people with COPD are non-adherent to their inhaled maintenance therapy. This can result in poorer clinical outcomes. Multiple device types can also negatively affect clinical outcomes by causing confusion around inhaler use. Sustainability is a hot topic in respiratory medicine. Strategies to improve symptom control and reduce healthcare contacts improves sustainability, as does reducing the carbon footprint of inhalers. Two aspects of sustainable COPD treatment are examined here: the effect of multiple device types on adherence, and whether simpler inhaler regimens, along with adherence, affect awareness and attitudes regarding more sustainable COPD treatment.

Methods Inpatients with COPD at a London hospital were identified between October and December '22, and consented to participate in a modified version of the 2020 Asthma UK survey on attitudes to sustainability of inhalers. Their Medicines Possession Ratio (MPR, an estimate of adherence) was calculated using primary care prescription records.

Results 147 patients completed the survey and had an MPR available. 104/147 (71%) patients had good adherence. 61/147 were prescribed different device types for maintenance and reliever medications. 48/61 (79%) patients with differing device types had good adherence, compared to 56/86 (65%) patients with consistent devices.

44/147 patients were aware of the environmental impact of inhalers; 33 (75%) had consistent inhaler device regimens, 31 (70%) had good adherence. Of those unaware, 53/103 (51%) had a consistent device regimen; 73 (71%) had good adherence.

91/147 patients were willing to switch to greener inhalers. Similar proportions of those willing (69%) and unwilling/unsure (73%) to switch inhalers had good adherence. A greater proportion of those unwilling/unsure, 38/56 (68%), had consistent inhaler device regimens, compared to 53/91 (58%) of the willing cohort.

Conclusion This cohort demonstrated better adherence to inhaled COPD therapies than often reported, but it didn’t influence willingness to switch to greener inhaler devices. These results present challenges for delivering sustainable care. Those with consistent inhaler device regimens are less adherent and less likely to switch to greener inhalers compared to those with different device types. This may undermine attempts to improve clinical outcomes and the sustainability of inhalers.