baseline and 7 weeks. Within and between group differences were analysed using paired and unpaired t-tests respectively.

Results Please see table 1.

Conclusion SPACE for COPD can improve dyspnoea and endurance capacity over 7 weeks to a similar level to PR, although it remains unclear to its noninferiority to PR. The SPACE for COPD programme does offer a number of health benefits despite it involving limited support and could offer a suitable alternative to patients with COPD who would otherwise not attend conventional rehabilitation.

REFERENCES

THE EFFECTS OF MAINTENANCE SCHEDULES FOLLOWING PULMONARY REHABILITATION IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Background There is good evidence that pulmonary rehabilitation (PR) provides benefit for patients with chronic obstructive pulmonary disease (COPD) in terms of quality of life and daily functioning. However it is generally accepted that the benefits diminish over time.

Methods We conducted a randomised controlled parallel study of a maintenance programme, following standard PR, consisting of a two hour session of education and strength and endurance training every 3 months versus standard care. Measurements were made, at baseline (prior to a standard PR programme), at randomisation (after successful completion of a PR programme) and after 12 months, of the chronic respiratory questionnaire (CRQ), endurance shuttle walk test (ESWT), EuroQol (EQ5D), hospital anxiety and depression score (HADS) and activity questionnaires. CRQ was also completed every 3 months by post.

Results 250 (139 male) patients, mean (SD) age of 69.2 (9.2) years, FEV1 41 (16)% predicted, provided informed consent to participate in the study. The mean (95%) CI improvement in CRQ following the initial PR was 0.76 (0.59, 0.93) units. 148 patients entered the randomised part of the study. There remained a significant improvement in CRQ dyspnoea at 12 months compared to baseline for the group as a whole. However, there was no statistically significant differences detected between the intervention and control groups for the CRQ dyspnoea score, which amounted to 0.19 (-0.26, 0.64) units or other domains of the CRQ.

Conclusion A maintenance programme of 3 monthly 2 hour sessions does not improve outcomes in patients with COPD after 12 months. We cannot recommend that our maintenance programme is adopted. It is likely that a maintenance programme should commence earlier than 3 months and possibly be more intensive.

SEVERE HOSPITALISED EXACERBATIONS OF COPD WITH AN EOSINOPHILIC PHENOTYPE HAVE FAVOURABLE OUTCOMES WITH PREDNISOLONE THERAPY: SUB-ANALYSIS FROM A PROSPECTIVE MULTI-CENTRE RANDOMISED CONTROL TRIAL

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Introduction In moderate exacerbations of COPD, patients with the eosinophilic phenotype (>2% of the total leukocyte count) have better outcomes with prednisolone. However, it remains unclear whether patients with severe exacerbations displaying the eosinophilic phenotype have accentuated recovery following corticosteroid therapy compared to non-eosinophilic COPD exacerbations.

Aim Measure the incidence of eosinophilic and non-eosinophilic severe exacerbations of COPD, from a large prospective enhanced recovery multi-centre randomised control trial and investigate severity and recovery between these groups.

Methods COPD patients entering the programme delivered immediately on hospitalisation for an acute exacerbation of chronic respiratory disease to improve long term health outcomes (clinical trial registration ISRCTN05557928) were analysed using admission details, length of stay and proceeding exacerbation history. All patients were dichotomised into eosinophilic (>200 x106 cells/mL and/or >2% of the total leukocyte count) and non-eosinophilic. CRP was measured on admission.

Results There were 243 COPD patients (117 males) identified. The mean (range) age was 71 years (45-93) and the majority of patients (55%) had been hospitalised for an exacerbation of COPD in the previous 12 months. Of all exacerbations, the inpatient mortality rate was 3% (median time to death 12 days, range 9-16) and approximately 90% received both antibiotic and corticosteroid treatment. The incidence of an eosinophilic exacerbation was 25% (median absolute eosinophil count 100 x103 cells/ml; range 10 to 1500). In patients with eosinophilic exacerbations compared to non-eosinophilic exacerbations the median (IQR) CRP concentration was significantly lower (12mg/L (18–131), p < 0.001); and the presence of an elevated eosinophil count and elevated CRP (>200 x106 eosinophils/mL and CRP>50mg/L) occurred in only 5% of all exacerbations. The length of stay was significantly shorter in patients with eosinophilic exacerbations compared to non-eosinophilic exacerbations (mean (range) 5.0 (1–19) vs. 6.5 (1–33), p = 0.015). The severity of the index exacerbation or the rate of exacerbations or hospitalisations in the following 12 months was not statistically significant between groups.

Conclusions In severe hospitalised exacerbations of COPD, a proportion have an associated eosinophilic phenotype. These exacerbations are usually not associated with an elevated CRP. Eosinophilic exacerbations have better responses to oral corticosteroids with shortened length of stay.

THE EFFECTS OF STATIN THERAPY ON INFLAMMATORY MARKERS IN PATIENTS WITH COPD: A DOUBLE BLIND RANDOMISED CONTROLLED TRIAL

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Introduction Treatment of COPD has been associated with inflammatory markers, such as inflammatory cytokines and markers of oxidative stress, in both healthy and diseased lung tissue. There is good evidence that pulmonary rehabilitation can improve inflammatory biomarkers. However, there is no evidence that treatment with statin in patients with COPD have a similar inflammatory effect.

Aim To evaluate the effect of simvastatin treatment on inflammatory markers in patients with COPD.

Methods A randomised, double-blind, placebo-controlled crossover trial was conducted on 20 patients with moderate to severe COPD. All patients were ambulatory and had not been treated with any form of pulmonary rehabilitation. The participants were randomly assigned to either simvastatin (40mg) or placebo tablets, and each group received the alternate treatment after 12 weeks of the first treatment. The primary outcome was a reduction of inflammatory biomarkers (C-reactive protein, fibrinogen, interleukin-6, interleukin-10, tumor necrosis factor), while the secondary outcome was a reduction of oxidative stress biomarkers (malondialdehyde, oxidized low density lipoprotein).

Results There were no significant differences between the two groups in terms of baseline inflammatory biomarkers. However, after 12 weeks of simvastatin treatment, there was a significant reduction of C-reactive protein (p=0.03) and fibrinogen (p=0.02) compared to placebo. There were no significant differences in the oxidative stress biomarkers.

Conclusion Treatment with simvastatin in patients with COPD may lead to a reduction of inflammatory biomarkers, which may have a beneficial impact on the overall inflammatory response in these patients. Further studies are needed to confirm these findings and to evaluate the potential impact of simvastatin on clinical outcomes in patients with COPD.
Background Systemic and airway inflammation are recognised in COPD and reducing inflammation has been postulated to alter disease course. Statins have pleiotropic effects including anti-inflammatory properties. A study in asthma showed that statins reduced sputum macrophage levels. We hypothesised that statins would reduce systemic (hs-CRP) and airway (exhaled nitric oxide: FeNO, sputum neutrophils and macrophages) inflammation in patients with COPD.

Methods Clinically stable patients with confirmed COPD were recruited and randomised to either simvastatin 20mg od (active) or placebo for 6 weeks in a double blinded parallel group randomised controlled trial. Circulating hs-CRP and fasting lipids were measured in all subjects’ pre- and post-treatment. 3-flow FeNO and induced sputum were performed in consenting patients where possible pre- and post-treatment. Primary analysis compared the six week change in each inflammatory marker between active and placebo groups.

Results Patients were matched for age, sex, smoking and lung function; active: n = 33, placebo: n = 37. Compliance was good and the active group achieved total cholesterol reduction: between arms mean (95% CI): -1.1 (-1.3, -0.8) mmol/L, p < 0.001. Baseline median (IQR) hs-CRP was 3.09 (1.3-7.4) mg/l but there was no significant change after treatment between active and placebo: between arms mean (95% CI) 0.5(-3.2, 4.1) mg/L. Baseline sputum samples were obtained in n = 27 and 22/27 had neutrophilic sputum. Paired samples were obtained in 20 patients: active n = 8 and placebo n = 12 with no significant difference in change between treatment arms for sputum neutrophils or macrophages. FeNO was measured in 36 patients: active n = 17, placebo n = 19 with no significant difference in change between arms.

Conclusions In this pilot RCT, despite significant lipid lowering, there was no demonstrable systemic or airway anti-inflammatory effect over 6 weeks with simvastatin 20mg od in patients with COPD. Baseline results showed a majority had neutrophilic sputum however only a small proportion had airway inflammation evaluation.

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REFERENCE