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| **Blood eosinophils to guide GP treated COPD exacerbations: an RCT** |
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| **Introduction/Aim:** Prednisolone for COPD exacerbation treatment leads to more patient harm than benefit. This multi-centre primary care randomised trial hypothesised that blood-eosinophil directed corticosteroid therapy using near-patient testing was non inferior to current standard practice during an exacerbation of COPD.  **Methods:** Patients with a COPD exacerbation were recruited from 14 general practices in the Thames Valley. Participants were randomly allocated to receive intervention with eosinophil-biomarker guided matched prednisolone or placebo or standard care (matched prednisolone 30mg) for 14 days. Participants in the blood eosinophil directed treatment (BET) arm with a blood eosinophil count of <2% on point of care testing were treated with blinded placebo. Participants were followed up at day 14, 30 and 90 after randomisation. The primary outcome was the rate of treatment failure, defined as any need for antibiotics and/or steroids at 30 days. Key secondary outcomes include change in COPD assessment test, FEV1 and visual analogue scale of COPD exacerbation symptoms.  **Results:** 144 exacerbations were included in the modified intention to treat (mITT) analysis. There were 73 and 71 exacerbations in the blood eosinophil directed arm and standard care arms respectively. The mITT analysis comparing blood eosinophil directed treatment over standard care showed a large non-significant effect (RR 0.60, 95% CI 0.33 to 1.04, p=0.070) in reducing treatment failures after a COPD exacerbation. Blood eosinophil count guided treatment was non-inferior to standard care. There were no statistically or clinically meaningful differences in the COPD Assessment Test, FEV1 and the symptom visual analogue scores between participants in both arms.  **Conclusion:** Point of care blood eosinophil guided prednisolone therapy was non inferior to standard care in primary care treated exacerbations of COPD.  **Trial Registration:** NCT04458636 **Grant support:** National Institute for Health and Social Care Research (NIHR), UK |