Risk factors for corticosteroid- and antibiotic only-treated asthma attacks in the NOVELTY cohort

Simon Couillard,[1,2] Stefan Peterson,[3] Thomas Bengtsson,[3] Maarten van den Berge,[4] David Price,[5,6] Richard Beasley,[7] Mohsen Sadatsafavi,[8] Christer Janson,[9] Alberto Papi,[10] Laura Belton,[11] Malin Fagerås,[12] Hana Müllerová,[13] Ian D Pavord[1]

[1]Respiratory Medicine Unit and Oxford Respiratory NIHR BRC, Nuffield Department of Medicine, University of Oxford, Oxford, UK; [2]Faculté de Médecine et des Sciences de la Santé, Université de Sherbrooke, Sherbrooke, QC, Canada; [3]StatMind AB, Lund, Sweden; [4]Department of Pulmonology and Groningen Research Institute for Asthma and COPD, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands; [5]Observational and Pragmatic Research Institute, Singapore; [6]Centre of Academic Primary Care, Division of Applied Health Sciences, University of Aberdeen, Aberdeen, UK; [7]Medical Research Institute of New Zealand, Wellington, New Zealand; [8]Respiratory Evaluation Sciences Program, Faculty of Pharmaceutical Sciences, University of British Columbia, Vancouver, BC, Canada; [9]Department of Medical Sciences: Respiratory, Allergy and Sleep Research, Uppsala University, Uppsala, Sweden; [10]Respiratory Medicine Unit, Department of Translational Medicine, Università di Ferrara, Ferrara, Italy; [11]Biostatistics, BioPharmaceuticals Medical, AstraZeneca, Cambridge, UK; [12]Respiratory Global Medical Affairs, BioPharmaceuticals Medical, AstraZeneca, Gothenburg, Sweden; [13]Medical and Payer Evidence Strategy, Respiratory and Immunology, BioPharmaceuticals Medical, AstraZeneca, Cambridge, UK

Total: 1809 characters (1810 maximum, including spaces and title)

Background: Risk factors for asthma attacks requiring corticosteroid treatment include elevated biomarkers of type-2 airway inflammation. In real life, asthma attacks are often treated with antibiotics, and little is known about these attacks.

Aim: We explored predictors for corticosteroid- and antibiotic only-treated attacks in the multi-country, prospective, observational NOVELTY cohort (NCT02760329).

Methods: Patients with physician-assigned asthma with baseline data for 15 candidate predictors (including blood eosinophils [EOS] and fractional exhaled nitric oxide [FeNO]) and data for exacerbation history (acute asthma requiring ≥3 days of corticosteroids and/or hospitalisation, or antibiotics only) in the 12 months prior to and the 12 months post-baseline, not on biologics, were included. Adjusted rate ratios [95% confidence intervals] were calculated to determine risk factors for annualised corticosteroid- and antibiotic only-treated attacks.

Results: Of 4,753 patients with asthma, 961 with full predictors and outcomes data were included. Significant predictors for corticosteroid-treated attacks were female sex (1.54 [1.08–2.21]), increased symptoms (Asthma Control Test 0.94 [0.91–0.97], for one unit) and a prior corticosteroid-treated attack (3.68 [2.69–5.03]); but not EOS and FeNO. Predictors for antibiotic only-treated attacks were low FEV_1% (0.98 [0.96–1.00], for one unit), comorbid rhinosinusitis (2.42 [0.98–5.93]) and a prior antibiotic only-treated attack (4.24 [1.53–12.07]).

Conclusion: Risk factors for corticosteroid- and antibiotic only-treated attacks differed. Contrary to clinical trial reports, type-2 biomarkers did not predict asthma attacks in this subset of patients.

Group choice

5 - Airway diseases, asthma, COPD and chronic cough

- 05.02 - Monitoring airway disease

Major respiratory diseases

- Airway diseases

Methods research clinical practice

- General respiratory patient care

Professional Group

- Adult pulmonologists/Clinicians

Keywords (3 maximum): Asthma- Management, Biomarkers, Exacerbation