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Markers of disease activity in COPD: an 8-year mortality study in the ECLIPSE cohort

Bartolome Celli ^{1,15}, Nicholas Locantore ^{2,15}, Julie C. Yates³, Per Bakke⁴, Peter M.A. Calverley⁵, Courtney Crim³, Harvey O. Coxson⁶, David A. Lomas⁷, William MacNee⁸, Bruce E. Miller², Hana Mullerova², Stephen I. Rennard ⁹, Edwin K. Silverman¹, Emiel Wouters^{10,11}, Ruth Tal-Singer ², Alvar Agusti^{12,13,16} and Jørgen Vestbo ^{14,16}, for the Evaluation of COPD Longitudinally to Identify Predictive Surrogate Endpoints (ECLIPSE) Investigators

Affiliations: ¹Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA. ²GSK R&D, Collegeville, PA, USA. ³GSK R&D, Research Triangle Park, NC, USA. ⁴Institute of Internal Medicine, University of Bergen, Bergen, Norway. ⁵Institute of Ageing and Chronic Disease, University of Liverpool, Liverpool, UK. ⁶Centre for Heart Lung Innovation, St Paul's Hospital, Vancouver, BC, Canada. ⁷UCL Respiratory, Rayne Institute, University College London, London, UK. ⁸University of Edinburgh, Edinburgh, UK. ⁹University of Nebraska Medical Center, Omaha, NE, USA. ¹⁰University of Maastricht, Maastricht, The Netherlands. ¹¹Ludwig Boltzmann Institute for Lung Health, Vienna, Austria. ¹²Respiratory Institute, Hospital Clinic, IDIBAPS, University of Barcelona, Barcelona, Spain. ¹³CIBER Enfermedades Respiratorias (CIBERES), Madrid, Spain. ¹⁴Division of Infection, Immunity and Respiratory Medicine, School of Biological Sciences, University of Manchester, Manchester, UK. ¹⁵Joint first authors. ¹⁶Joint senior authors.

Correspondence: Bartolome Celli, Brigham and Women's Hospital and Harvard Medical School, 31 Riverglenn Rd, Wellesley, MA 02481-1626, USA. E-mail: BCelli@copdnet.org

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In patients with COPD, 1- and 3-year changes in exacerbation frequency, systemic inflammation, BODE and SGRQ scores, and FEV₁ decline, are independent markers of disease activity associated with 8-year all-cause mortality <https://bit.ly/2CyifcN>

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ABSTRACT

Rationale: There are no validated measures of disease activity in COPD. Since “active” disease is expected to have worse outcomes (*e.g.* mortality), we explored potential markers of disease activity in patients enrolled in the ECLIPSE cohort in relation to 8-year all-cause mortality.

Methods: We investigated 1) how changes in relevant clinical variables over time (1 or 3 years) relate to 8-year mortality; 2) whether these variables inter-relate; and 3) if any clinical, imaging and/or biological marker measured cross-sectionally at baseline relates to any activity component.

Results: Results showed that 1) after 1 year, hospitalisation for COPD, exacerbation frequency, worsening of body mass index, airflow obstruction, dyspnoea and exercise (BODE) index or health status (St George's Respiratory Questionnaire (SGRQ)) and persistence of systemic inflammation were significantly associated with 8-year mortality; 2) at 3 years, the same markers, plus forced expiratory volume in 1 s (FEV₁) decline and to a lesser degree computed tomography (CT) emphysema, showed association, thus qualifying as markers of disease activity; 3) changes in FEV₁, inflammatory cytokines and CT emphysema were not

inter-related, while the multidimensional indices (BODE and SGRQ) showed modest correlations; and 4) changes in these markers could not be predicted by any baseline cross-sectional measure.

Conclusions: In COPD, 1- and 3-year changes in exacerbation frequency, systemic inflammation, BODE and SGRQ scores and FEV₁ decline are independent markers of disease activity associated with 8-year all-cause mortality. These disease activity markers are generally independent and not predictable from baseline measurements.