

Hospitalized Exacerbations of COPD

Risk Factors and Outcomes in the ECLIPSE Cohort

Hana Müllerova, PhD; Diego J. Maselli, MD; Nicholas Locantore, PhD; Jørgen Vestbo, MD; John R. Hurst, MD, PhD; Jadwiga A. Wedzicha, MD; Per Bakke, MD, PhD; Alvar Agusti, MD, PhD; and Antonio Anzueto, MD; for the ECLIPSE Investigators

OBJECTIVE: Exacerbations of COPD requiring hospital admission have important clinical and societal implications. We sought to investigate the incidence, recurrence, risk factors, and mortality of patients with COPD exacerbations requiring hospital admission compared with those without hospital admission during 3-year follow-up. Patients with COPD (N 5 2,138) were identified from the Evaluation of COPD Longitudinally to Identify Predictive Surrogate Endpoints (ECLIPSE) observational cohort.

METHODS: An analysis of time to first event of hospital admission was performed using Kaplan-Meier curves and Cox proportional hazard regression adjusting for possible confounders.

RESULTS: Of the 2,138 patients, 670 (31%) reported a total of 1,452 COPD exacerbations requiring hospital admission during the study period; 313 patients (15%) reported multiple events. A prior history of exacerbation of COPD requiring hospital admission was the factor associated with the highest risk of a new hospitalization for exacerbation (hazard ratio, 2.71; 95% CI, 2.24-3.29; P , .001). Other risk factors included more severe airflow limitation, poorer health status, older age, radiologic evidence of emphysema, and higher WBC count. Having been hospitalized for exacerbation significantly increased the risk of mortality (P , .001).

CONCLUSIONS: Exacerbations of COPD requiring hospital admission occur across all stages of airflow limitation and are a significant prognostic factor of reduced survival across all COPD stages. Patients with COPD at a high risk for hospitalization can be identified by their past history for similar events, and other factors, including the severity of airflow limitation, poor health status, age, presence of emphysema, and leukocytosis.

TRIAL REGISTRY: ClinicalTrials.gov; No.: NCT00292552; URL: www.clinicaltrials.gov
CHEST 2015; 147(4): 999 – 1007

[Original Research COPD]

Manuscript received April 17, 2014; revision accepted September 17, 2014; originally published Online First October 30, 2014.

ABBREVIATIONS: BODE 5 BMI, degree of airflow obstruction and dyspnea, and exercise capacity; ECLIPSE 5 Evaluation of COPD Longitudinally to Identify Predictive Surrogate Endpoints; GOLD 5 Global Initiative for Chronic Lung Disease; HR 5 hazard ratio; PPPY 5 per person per year

AFFILIATIONS: From Respiratory Epidemiology (Dr Müllerova), GlaxoSmithKline R&D, Uxbridge, England; Audie L. Murphy Hospital (Drs Maselli and Anzueto), South Texas Veterans Health Care System, San Antonio, TX; Division of Pulmonary Diseases/Critical Care Medicine (Drs Maselli and Anzueto), University of Texas Health Science Center at San Antonio, San Antonio, TX; Respiratory Medicines Development Center (Dr Locantore), GlaxoSmithKline, Research Triangle Park, NC; Gentofte (Dr Vestbo), Hellerup, Denmark; Respiratory Research Group (Dr Vestbo), Manchester Academic Health Science Centre, University of Manchester, Manchester, England; Centre of Inflammation and Tissue Repair (Dr Hurst), University College London, London, England; Centre for Respiratory Medicine (Dr Wedzicha), University College London, London, England; Department of Clinical Science (Dr Bakke), University of Bergen, Bergen, Norway; Department of Thoracic Medicine (Dr Bakke), Haukeland University Hospital, Bergen, Norway; Thorax Institute (Dr Agusti), Hospital Clinic, IDIBAPS, University of Barcelona, Barcelona, Spain; and FISIB, CIBER Enfermedades Respiratorias (Dr Agusti), Mallorca, Spain.

Dr Wedzicha is currently at the National Heart and Lung Institute, Imperial College London (London, England).

FUNDING/SUPPORT: The ECLIPSE study was funded by GlaxoSmithKline.

CORRESPONDENCE TO: Antonio Anzueto, MD, Division of Pulmonary/Critical Care Medicine, University of Texas Health Science Center at San Antonio, 7400 Merton Minter, MC111E, San Antonio, TX 78229; e-mail: anzueto@uthscsa.edu

© 2015 AMERICAN COLLEGE OF CHEST PHYSICIANS. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details.

DOI: 10.1378/chest.14-0655