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Title: Relationship between exacerbation frequency and survival post MI in COPD patients

Dr. Jennifer 13067 Quint jennifer.quint@lshtm.ac.uk MD [1], Ms. Emily 13068 Herrett emily.herrett@lshtm.ac.uk [1], Prof. Adam 13069 Timmis a.timmis@mac.com MD [2], Prof. Harry 13070 Hemingway h.hemingway@ucl.ac.uk MD [3], Prof. Jadwiga 13071 Wedzicha w.wedzicha@ucl.ac.uk MD [4] and Prof. Liam 13075 Smeeth liam.smeeth@lshtm.ac.uk MD [1]. [1] NCDE, London School of Hygiene and Tropical Medicine, London, United Kingdom ; [2] Cardiology, Barts and the London NHS Trust, London, United Kingdom ; [3] Epidemiology and Population Health, University College London, United Kingdom and [4] Academic Unit of Respiratory Medicine, University College London, United Kingdom .

Body: COPD patients are at increased risk of myocardial infarction (MI),1 particularly after an exacerbation.2 COPD patients have shorter survival after MI compared to the general population. We investigated whether COPD patients with frequent exacerbations (FE) had shorter survival post MI than patients with infrequent exacerbations (IE). All COPD patients with a first MI between 1/1/03 and 31/12/08 as recorded in MINAP, who had no previous evidence of MI in GPRD or MINAP were included. Patients under 35, not registered with GPRD at the time of MI, or with less than 1 year of follow-up before their MI were excluded. Exacerbations were defined using pre-defined READ codes and prescription of pre-specified antibiotics and/or steroids. FE had ≥2 exacerbations in the year preceding MI and IE <2. Data were provided by the CALIBER group at UCL. The primary outcome was death after MI. Cox proportional hazards models were used to adjust for potential confounders. 1063 patients were identified with a first STEMI or NSTEMI. 111 (10.4%) FE and 952 (89.6%) IE. The unadjusted mortality rate in FE was 285.7 deaths (95%CI 222.3-367.2) per 1000 person years and in IE 152.4 deaths (95% CI 138.1-168.1) per 1000 person years. Adjusting for confounding by smoking and gender and stratifying by age, mortality was greater in FE compared to IE; HR 1.61(95%CI 1.23-2.11);p=0.001. Mortality was greater in patients who exacerbated in the 2 months preceding the MI; HR 3.88(2.70-5.56):p<0.001. Conclusions: FE have shorter survival after a first MI than IE. There appears to be an association between timing of exacerbations, exacerbation frequency and survival after 1st MI. 1. Feary et al Thorax 2011 2. Donaldson et al Chest 2010.