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Prognostic significance of chronic respiratory symptoms in individuals with normal spirometry

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Chronic respiratory symptoms are associated with respiratory hospitalisations and death in individuals with normal spirometry. Persistent symptoms should lead to further investigations for airway disease even with normal spirometry. <http://bit.ly/2ZnnO3T>

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ABSTRACT Normal spirometry is often used to preclude airway disease in individuals with unspecific respiratory symptoms. We tested the hypothesis that chronic respiratory symptoms are associated with respiratory hospitalisations and death in individuals with normal spirometry without known airway disease.

We included 108 246 randomly chosen individuals aged 20–100 years from a Danish population-based cohort study. Normal spirometry was defined as a pre-bronchodilator forced expiratory volume in 1 s/forced vital capacity ratio ≥ 0.70 . Chronic respiratory symptoms included dyspnoea, chronic mucus hypersecretion, wheezing and cough. Individuals with known airway disease, *i.e.* chronic obstructive pulmonary disease and/or asthma, were excluded ($n=10\,291$). We assessed risk of hospitalisations due to exacerbations of airway disease and pneumonia, and respiratory and all-cause mortality, from 2003 through 2018.

52 999 individuals had normal spirometry without chronic respiratory symptoms and 30 890 individuals had normal spirometry with chronic respiratory symptoms. During follow-up, we observed 1037 hospitalisations with exacerbation of airway disease, 5743 hospitalisations with pneumonia and 8750 deaths, of which 463 were due to respiratory disease. Compared with individuals with normal spirometry without chronic respiratory symptoms, multivariable adjusted hazard ratios for individuals with normal spirometry with chronic respiratory symptoms were 1.62 (95% CI 1.20–2.18) for exacerbation hospitalisations, 1.26 (95% CI 1.17–1.37) for pneumonia hospitalisations, 1.59 (95% CI 1.22–2.06) for respiratory mortality and 1.19 (95% CI 1.13–1.25) for all-cause mortality. There was a positive dose–response relationship between number of symptoms and risk of outcomes. Results were similar after 2 years of follow-up, for never-smokers alone, and for each symptom separately.

Chronic respiratory symptoms are associated with respiratory hospitalisations and death in individuals with normal spirometry without known airway disease.