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Title: Influence of the seasons on exacerbation characteristics in a cohort of COPD patients (EXACO study)

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Body: Background: COPD patients experience more frequent exacerbations in the winter. Objectives: To assess the impact of the seasons on exacerbation characteristics in patients with COPD. Methods: In this French prospective observational study, respiratory physicians (n=132) included 835 COPD patients followed over 4 years. Sociodemographic data, clinical history, symptoms, lung function data and treatments were initially recorded. COPD clinical features, pulmonary function tests, treatments and the onset of exacerbations were recorded by the investigators during follow-up visits. Patients also completed exacerbation diaries. Exacerbation was identified as ≥ 2 consecutive days with a sustained worsening of the patient s symptoms beyond day-to-day variations. Exacerbation characteristics were compared within groups based on the season of onset.This analysis was conducted in 681 patients with exacerbation-related data. Results: Out of 4132 exacerbations, 1354 (33%) exacerbations occurred during winter (December to February) compared to 792 (19%) in summer (June to August), 980 (24%) in spring and 1006 (24%) in autumn. Mild exacerbations were more frequent in summer (17%,19% and18% in winter, spring and autumn respectively vs 24% in summer, P<0.001).The proportion of exacerbations meeting the Anthonisen criteria was higher outside the summer months (30%, 31% and 29% in winter, spring and autumn vs 23% in summer, P<0.001). Exacerbations in which dyspnea was the only symptom reported were more frequent in summer (5%, 7% and 7% in winter, spring and autumn vs 12% in summer,P< 0.0001). Conclusions:

Exacerbations appear to be less frequent and less severe with a specific clinical pattern in summer.