Severity of the Chronic Obstructive Pulmonary Disease (COPD) and the risk of Lung Cancer (LC): A Competing-Risks Analysis

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RATIONALE
COPD has been recognized as a LC risk factor, and LC is one of the most frequent death causes in COPD patients. Is still unknown whether the LC risk in COPD patients depends on the grade of airway obstruction.

METHODS
Prospective and multi-center study (Florida, Zaragoza, Tenerife and Pamplona), of 2471 COPD outpatients classified according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria, without evidence of prevalent LC, were followed from 1997 to 2011 for two potential outcomes: LC diagnosis or death. Baseline anthropometrics, smoking exposure (SE), and lung function were collected. To assess the association between airway obstruction and LC risk, we stratified our sample into four groups: GOLD1-2/<40 pack-years (py), GOLD1-2/≥40py, GOLD3-4/<40py, or GOLD3-4/≥40py. Advanced GOLD stage is strongly associated with the death risk from COPD; thus, we used conditional probability function regression to compare LC risk while controlling for competing risks [CR]. Analyses were adjusted for age, sex, body mass index and diffusion capacity.

RESULTS
Overall, 216 (8.7%) COPD patients developed LC. CR analyses, showed that patients with GOLD1-2/≥40py were significantly more likely to develop LC when compared to GOLD1-2/<40py (odds ratio [OR]: 3.07; p<0.01). Compared to GOLD1-2/<40py patients, GOLD3-4/<40py patients were significantly less likely to develop LC (OR<0.01; p<0.001) while GOLD3-4/≥40py patients had no difference in LC risk (OR 1.06; p=0.8) after adjustment for potential confounders.

CONCLUSIONS
Patients with severe COPD but limited SE may be at lower LC risk than patients with milder COPD, suggesting different susceptibility patterns to smoking.