Title: FEV1/FVC agreement study between two different seasons

Body: Introduction: There is still a controversy about which spirometric criteria should be used to diagnose chronic obstructive pulmonary disease (COPD). Longitudinal studies comparing the agreement of those criteria along the time are lacking in the literature. Aim: To evaluate the agreement of the fixed ratio (FEV1/FVC < 0.70) and the lower limit of normal (LLN) criteria, between two measurements taken at different times of the year. Methods: In the scope of INSPIRAR prospective study we assessed on 196 participants from one of the largest Portuguese chemical industrial complexes (Estarreja) the frequency of COPD established by two different spirometric criteria during two different seasons: June 2011 (Visit 1) and February 2012 (Visit 2). The considered criteria were the existence of a FEV1/FVC < 0.70 and having a FEV1/FVC below the LLN after bronchodilator. An agreement study was performed between the two Visits for each criteria trough the Cohen's kappa coefficient. Results: The mean age of the participants was 43.9 ± 10.6 years and 75% of them were males. The frequency of FEV1/FVC < 0.70 was 6.3% in Visit 1 and 5.2% in Visit 2 (p < 0.001). For the FEV1/FVC < LLN the frequency was 4.6% in Visit 1 and 6.2% in Visit 2 (p < 0.001). The intra-individual agreement between the two Visits was moderate for each spirometric criteria but slightly higher for the fixed ratio (for FEV1/FVC < 0.70: kappa = 0.61 ; for FEV1/FVC < LLN: kappa = 0.45). Conclusion: The moderate agreement found suggests the existence of an intra-individual variability between the two seasons. Despite this the agreement was higher for the fixed ratio criteria. Fundação para a Ciência e Tecnologia – INSPIRAR Project PTDC/AAC-AMB/103895/2008.