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Chronic obstructive pulmonary disease: validation of IPAG questionnaire and PIKO-6® and COPD-6® devices, in Portuguese primary health care units

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Background and Aim: Chronic Obstructive Pulmonary Disease (COPD) is a major cause of morbidity and mortality worldwide, usually not diagnosed until advanced stages of the disease. In Portugal, the BOLD study in the Lisbon region estimated a prevalence of 14.2% in adults over 40 years of age, with 86.8% of under-diagnosis. The use of simple screening tools in primary health care (PHC) can increase the number of identified cases at risk of developing COPD, leading to more timely diagnosis and implementation of appropriate treatment. This study aimed to validate the use of IPAG questionnaire and Piko-6® and COPD-6® mini-spirometers as tools for early detection of COPD cases, in the Portuguese population, from the PHC.

Methods: We selected patients over 40 years of age from 5 different PHC units. It was applied the IPAG questionnaire and tests with Piko-6® and COPD-6® devices were performed. The results were then compared with spirometry.

Results: Data from 568 subjects were analyzed (284 men; mean age 59.4±11.0 years), of whom 471 underwent mini-spirometry with Piko-6® and 97 with COPD-6®. The IPAG questionnaire was applied to the whole sample. Sixty-three (11.1%) cases of COPD were diagnosed. The sensitivity and specificity were, respectively, 84.13% and 49.90% for the IPAG questionnaire; 61.4% and 93.69% for the Piko-6®; 66.67% and 97.80% for the COPD-6®; 45.61% and 96.46% for the IPAG+Piko-6®; 66.67% and 98.90% for the IPAG+COPD-6®. The best area under the curve was found with the IPAG+ COPD-6® combination (83%), suggesting that it is the most accurate diagnostic test.

Conclusion: The IPAG questionnaire and Piko-6® and COPD-6® devices are important COPD screening tools and should be used in combination. A confirmatory spirometry should be carried out in the presence of positive results from IPAG and/or Piko-6®/ COPD-6®. The combination IPAG+COPD-6® was shown to be the most accurate test.