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Title: Use FEV6 and FEV1/FEV6 as alternative indicators in the diagnosis of bronchial obstruction in primary care

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Body: Background. We know that the spirometry is recommended for the diagnosis and management of chronic obstructive pulmonary disease (COPD). The specialists of respiratory medicine such as the American Thoracic and European Respiratory Societies (ATS/ERS) have published guidelines on standards of spirometry. Materials and Methods We analyzed data of lung function test of adult patients with and without COPD. Spirometry was performed with a mass flow sensor (BTL 08- Spiro; UK) according to the guidelines of the European Respiratory Society. For the diagnosis of airway obstruction, we used the NHANES III reference equations to calculate the LLN for FEV1, FEV6, FVC, FEV1/FEV6, and FEV1/FVC. We calculated sensitivity and specificity for FEV1/FEV6 below its LLN as a predictor for obstruction. We calculated the positive predictive value (PPV) and negative predictive value (NPV). Results. We analysed data of 250 spirometric test results in patients with COPD, 200 healthy who do not smoke and 245, who had an experience of smoking more than 33 packyears. Parameters of FEV6 and FEV1/FEV6 ratio in patients with COPD were similar to FVC and FEV1/FVC. The FEV1/FEV6 sensitivity was 92.0% and specificity was 90.1%. The PPV of FEV1/FEV6 was 88.6%, and the NPV was 92.0%. The prevalence of obstruction was 368 of 645 subjects (57.1%). Conclusion. The FEV1/FEV6 ratio can be used as a valid alternative for FEV1/FVC in the diagnosis of airway obstruction in adults when the realization of the broncodilatation test is limited in screening study in primary care.