IMPULSE OSCILLOMETRY IN THE DIAGNOSIS OF AIRWAY RESISTANCE IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS

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Background

Spirometry is a standard lung function test for diagnosis and staging of a chronic obstructive pulmonary disease (COPD). Impulse oscillometry (IOS) can be a complementary method to spirometry, especially in patients at advanced age and with physical or mental disorders who cannot be diagnosed through spirometry. The aim of this study was to compare IOS and spirometry in assessment of airway obstruction at COPD stages.

Material and methods

The study was conducted on 112 stable COPD patients, including 29 females and 83 males at the age of 51-73. COPD was diagnosed in accordance with GOLD guidelines. IOS and spirometry were performed in all the patients. The oscillometric parameters: respiratory resistance R5, R20 and R5-R20 were compared with $FEV_{1.}$ The relationships between the pulmonary function parameters were assessed with Pearson correlation. A P value < 0.05 was considered significant.

Results

R5-R20 (1892,82±1302,79cmH20/l/s) significantly correlated with FEV_1 (23,96±1,72%) at a very severe stage of COPD. The changes in R5 and R20 did not relate much to the changes in $FEV_{1.}$

Conclusions

1. IOS is a useful method for detecting airway resistance depending on COPD stages and may be used complementarily to spirometry.

2. IOS may be considered as a recommended method, especially for assessment of small R5-R20 airway resistance.