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Title: Early bronchial asthma diagnosis with electrical impedance spirometry

Prof. Vitaliy 17367 Mishlanov permmed@hotmail.com MD , Dr. Andrey 17368 Zuev zal@icmm.ru and Dr. Tatiana 17369 Ustiantzeva 28642864@mail.ru MD . ¹ Propedeutic of Internal Diseases, Perm State Medical Academy, Perm, Russian Federation, 614990 ; ² Laboratory of Hydrodynamics, Institute of Continuous Medium Mechanics Russian Academy of Sciences Ural Branch, Perm, Russian Federation, 614013 and ³ Propedeutic of Internal Diseases, Perm State Medical Academy, Perm, Russian Federation, 614990 .

Body: Electrical impedance spirometry (EIS) is an accurate and sensitive method of bronchial obstruction diagnosis because it uses the original electrical current way through the airways. Recently it was demonstrated that module of electrical impedance correlates with FEV₁ in bronchial asthma patients. The aim of the study was to estimate the effectiveness of EIC in controlled (mild) asthma diagnosis. Methods. 75 people with respiratory symptoms were included. Among them there were 39 children of 4-15 yrs and 36 adults in the age of 27 till 65 yrs (mean 43,7 yrs). Special methods included EIS (Mishlanov et al., 2011), conventional spirometry (Microlab), allergologic tests consisted of allergologic anamnesis, common and specific IgE. All patients were subdivided into two groups: 1) atopic patients (n=38, 50,7%) and 2) nonatopic patients (n=36). We used Statistica 8.0. Results. The bronchial obstruction signs were revealed in 12 patients with traditional spirometry (16%) and in 24 patients with EIS (32%). Sensitivity of EIS in common group was 66,7%, specificity was 58,4%. Among atopic patients bronchial obstruction signs were revealed in 9 patients with traditional spirometry (23,7%) and in 18 patients with EIS (47,4%). Sensitivity of EIS applying in atopic group was 100%, specificity was 86%. Atopic patients demonstrated higher electrical impedance module values than nonatopic patients (p=0,0053). Conclusion. The airways electrical impedance module depends on bronchial obstruction and some other features as the special biochemical characteristics of bronchial secret in atopic patients and its detection may be used for the bronchial asthma early diagnosis.