PULMONARY FUNCTION, ASSESSED BY IMPULSE OSCILLOMETRY, IN ACOS PATIENTS ON COMPLEX TREATMENT

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Abstract

Aim. To evaluate the effect of adding of tiotropium bromide to prior therapy in patients with ACOS on respiratory mechanics parameters using impulse oscillometry.

Methods. The study population consisted of 43 patients with ACOS. Patients continued to receive ICS or ICS + LABA in a stable dose and SABA as needed. Tiotropium bromide 18.0 mcg (hendihaler) or 5.0 mcg (respimat) (TIO) was added to treatment once daily. All patients underwent spirometry and impulse oscillometry at baseline, 3 hours after inhalation of medications, 24 hours after the inhalation, and after 2 months of treatment (pre- and postdose).

Results. 3 hours after the first inhalation of TIO, FEV1 and FVC significantly increased, the total airway resistance (Z) significantly decreased, resistance at 5 Hz (R5) returned to normal, resistance at 20 Hz (R20) decreased, their difference (R5–R20) also returned to normal, the low frequency reactance (X5), the resonance frequency (Fres) and reactance area (AX) decreased significantly.

24 hours after the first dose of tiotropium bromide FEV1 and FVC remained significantly increased, R5 and R20 were significantly reduced.

After 2 months of treatment we observed a significant increase in FEV1 and FVC, R5 and R20 significantly decreased.

After the inhalation of morning maintenance medications with the addition of tiotropium bromide, after two months of treatment there was a significant increase of FEV1, FVC, and a decrease of R5, R20, R5–R20, X5, AX, Fres and Z5.

Conclusions. Addition of tiotropium bromide to the previous therapy had a positive effect on the total resistance of the respiratory tract, large and small bronchi, increased flexibility and reduced airway obstruction after 3, 24 hours and 2 months of treatment. A significant positive trend was also observed after two months of treatment 3 hours after morning inhalation.

Key words: ACOS, tiotropium bromide, impulse oscillometry.