Supplementary material

Targeting dynamic hyperinflation in moderate to severe asthma - a randomized controlled trial

A. N. van der Meer¹, K. de Jong¹, A. Hoekstra-Kuik¹, E.H. Bel², A. ten Brinke¹

¹Medical Centre Leeuwarden - Leeuwarden (Netherlands), ²Amsterdam University Medical Centres - Amsterdam (Netherlands)

Procedure to assess dynamic hyperinflation

The presence and degree of dynamic hyperinflation (DH) persisting after maximal bronchodilatation was assessed by metronome-paced tachypnea test (1). The test was performed after inhalation of 400 mcg Salbutamol.

Performing metronome-paced tachypnea test, subjects were seated, breathing through a mouthpiece connected to the spirometer (MasterScreen-PFT, Jaeger) and were instructed how to perform the inspiratory capacity (IC) manoeuvres. At the start of this test the baseline IC was measured as the mean of three acceptable IC manoeuvres while the patient was at rest. Subjects were then asked to breathe at a metronome-paced frequency of twice the resting breathing rate for 20 seconds and immediately afterwards an IC manoeuvre was performed (2). The procedure was repeated after subjects had returned to their resting breathing level. Subjects were encouraged to maintain a stable tidal volume. DH was calculated as the difference between the IC measured during increased pacing and the IC at rest. A decrease in IC of ≥ 10% was considered as DH (2, 3).

REFERENCES

2. Lahaije AJMC, Willems LM, van Hees HWH, Dekhuijzen PNR, van Helvoort HAC, Heijdra YF. Diagnostic accuracy of metronome-paced tachypnea to detect dynamic


**LEGENDS**

**Figure 1.**
Change from baseline in dynamic hyperinflation after triamcinolone or placebo.

The change measured as the difference between DH post-treatment minus DH at baseline as a percentage of DH at baseline and adjusted for differences in baseline FE_{NO}, BMI, FEV₁/FVC and FRC/TLC. Data are presented as the adjusted means and 95% confidence intervals estimated from the regression model and conditional on the potential confounders being centered around their mean values.