SUPPLEMENTARY MATERIAL

Results (Supplement)

Table 1S – Spearman correlation coefficients between spirometric and oscillometric parameters, at baseline (Basal) and post-bronchodilator (PostBD)

			R5 (Z)		R5-20 (Z)		R5-20% (Z)		AX (Z)	
			Basal	PostBD	Basal	PostBD	Basal	PostBD	Basal	PostBD
FEV1 (%)	Basal	rho	-,193*	-,152	-,318**	-,191*	-,326**	-,186	-,296**	-,200*
		p	,046	,117	,001	,049	,001	,055	,002	,042
	PostBD	rho	-,180	-,207*	-,203*	-,210*	-,183	-,168	-,230*	-,221*
		p	,064	,032	,036	,030	,059	,083	,019	,024
FEV0.75 (%)	Basal	rho	-,214*	-,167	-,355**	-,216*	-,369**	-,214*	-,331**	-,222*
		p	,027	,086	,000	,026	,000	,027	,001	,024
	PostBD	rho	-,194*	-,212*	-,232*	-,229*	-,214*	-,189	-,254**	-,240*
		p	,045	,028	,016	,017	,027	,051	,009	,014
FEV1/FVC (%)	Basal	rho	-,210*	-,085	-,368**	-,194*	-,406**	-,238*	-,289**	-,098
		p	,030	,384	,000	,045	,000	,014	,003	,322
	PostBD	rho	-,088	-,057	-,291**	-,191*	-,311**	-,190	-,222*	-,108
		p	,368	,557	,002	,048	,001	,050	,024	,274
FEF25-75 (%)	Basal	rho	-,196*	-,115	-,389**	-,229*	-,394**	-,252**	-,307**	-,169
		p	,043	,237	,000	,017	,000	,009	,002	,087
	PostBD	rho	-,186	-,156	-,376**	-,246*	-,390**	-,225*	-,359**	-,195*
		p	,055	,108	,000	,011	,000	,020	,000	,047

FEV1 - forced expiratory volume in 1 s; FEV0.75 - forced expiratory volume in 0.75 s; FVC - forced vital capacity; FEF25-75 - forced expiratory flow at 25% to 75% of the FVC; R5 - Respiratory resistance at 5 Hz; R5-20 - the difference between respiratory resistance at 5 and 20 Hz; R5-20% - the relative difference of R5-20; AX - area under the reactance curve; Z – Z-score; rho - Spearman correlation coefficient; p – p-value

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Table 2S - Spearman correlation coefficients between variation post-bronchodilator of spirometric and oscillometric parameters

		Δ R5 (%)	Δ R5-20 (%)	Δ R5-20% (%)	Δ AX (%)
Δ FEV1 (%)	rho	-,274**	-,222*	-,185	-,221*
	p	,004	,022	,057	,026
Δ FEV0.75 (%)	rho	-,260**	-,237*	-,195*	-,247*
	p	,007	,014	,044	,013

Δ (%) - change as a percent of the initial value of parameter; FEV1 - forced expiratory volume in 1 s; FEV0.75 - forced expiratory volume in 0.75 s; FVC - forced vital capacity; FEF25-75 - forced expiratory flow at 25% to 75% of the FVC; R5 - Respiratory resistance at 5 Hz; R5-20 - the difference between respiratory resistance at 5 and 20 Hz; R5-20% - the relative difference of R5-20; AX - area under the reactance curve; rho - Spearman correlation coefficient; p – p-value

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Table 3S – Baseline lung function of the children

	Uncontrolled asthma (n=53)	**Controlled asthma (n=54)**	**Healthy controls (n=14)**	**p[a]**
FEV_1 % pred	93.2 (85.4; 99.7)	95.5 (88.1; 107.0)	97.1 (91.2; 106.2)	0.442
$FEV_{0.75}$ % pred	91.3 (84.0; 99.6)	93.9 (84.6; 104.4)	100.4 (90.9; 107.2)	0.244
FVC % pred	94.4 (86.1; 105.9)	99.0 (91.2; 110.1)	99.8 (90.4; 104.7)	0.336
FEV_1/FVC % pred	97.9 (93.1; 101.8)	97.1 (92.0; 101.3)	99.3 (96.1; 100.2)	0.667
$FEF_{25-75\%}$ % pred	70.2 (59.6; 91.5)	74.0 (65.9; 86.4)	89.3 (62.0; 109.3)	0.147
R5 ***z-score***	0.91 (0.27; 1.56)	1.20 (0.50; 2.20)	0.83 (-.09; 1.52)	0.187
R5-20 ***z-score***	2.26 (1.16; 3.59)	2.62 (1.41; 3.86)	1.44 (1.07; 2.76)	0.128
R5-20% ***z-score***	2.72 (1.31; 4.09)	3.01 (1.68; 4.56)	1.66 (1.11; 2.55)	0.063
AX ***z-score***	5.01 (3.13; 8.20)	6.13 (3.81; 10.19)	3.66 (1.70; 4.63)	0.072

Values are expressed as median and inter-quartile range ($P_{25;}$ P_{75}); FEV_1 - forced expiratory volume in 1 s; $FEV_{0.75}$ - forced expiratory volume in 0.75 s; FVC - forced vital capacity; FEF25-75 - forced expiratory flow at 25% to 75% of the FVC; R5 - Respiratory resistance at 5 Hz; R5-20 - the difference between respiratory resistance at 5 and 20 Hz; R5-20%, the relative difference of R5-20; AX - area under the reactance curve; [a]Kruskal Wallis test;

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Table 4S – Univariable analysis of lack of asthma control

Variables	OR estimates	95% CI	p-value
Age	1.15	(0.65; 2.03)	0.641
Male	0.61	(0.28; 1.32)	0.210
Obesity	1.42	(0.46; 4.42)	0.543
Mother with asthma	0.72	(0.31; 1.65)	0.435
Father with asthma	0.53	(0.21; 1.35)	0.184
Parents with asthma	0.49	(0.23; 1.05)	0.067
Parents with high school	0.44	(0.17; 1.15)	0.094
EVW	0.96	(0.45; 2.05)	0.916
>3 flare-ups/12 months	3.76	(1.60; 8.84)	0.002
≥1 OCS course/12 months	0.89	(0.42; 1.91)	0.767
≥1 emergency visit / 12 months	0.77	(0.36; 1.66)	0.503
Early onset	1.07	(0.25; 4.55)	0.927
Rhinitis	2.30	(0.85; 6.26)	0.098
Atopic eczema	1.65	(0.76; 3.58)	0.209
Rhinitis and Eczema	2.19	(0.97; 4.95)	0.060
Moderate to severe rhinitis	2.87	(1.01; 8.17)	0.048
Food allergy	1.02	(0.28; 3.75)	0.975
Atopy	1.12	(0.52; 2.39)	0.773
Inhaled corticosteroids	3.14	(1.41; 7.02)	0.005
Adherence to therapy	0.24	(0.03; 2.15)	0.202
Current passive smoking	1.64	(0.54; 4.97)	0.385
Mother smoke in pregnancy	1.37	(0.47; 4.00)	0.561
Mother smoke in 1st year	1.18	(0.42; 3.32)	0.759
Mother current smoking	1.97	(0.71; 5.46)	0.195
Home humidity 1st year	0.94	(0.41; 2.14)	0.885
Current home humidity	1.03	(0.47; 2.27)	0.943
Pets at home	0.97	(0.45; 2.06)	0.928
FVC (Var %)	1.05	(1.00; 1.10)	0.034
FEV_1 (Var %)	1.05	(0.99; 1.10)	0.081

EVW – Episodic viral wheeze; OCS – oral corticosteroids; FEV_1 - forced expiratory volume in 1s; FVC - forced vital capacity; OR – odds ratio; CI – confidence interval; p values were obtained by generalized additive regression models.

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