Table 1. General characteristics of the population

	Total (n = 112)	Missing data (n (%))
Sex M/F (n (%))	59/53 (57.3/42.7%)	-
Age (years)	13.9 [11.6-16]	-
BMI (kg/m^2)	20.7 [18-23.2]	4 (3.6%)
Family history of atopy (n (%))	68 (60.7%)	32 (28.6%)
History of prematurity	10 (8.9%)	57 (50.9%)
Atopic dermatitis (n (%))	30 (26.8%)	33 (29.5%)
Food allergies (n (%))	29 (25.9%)	37 (33%)
Allergic rhinoconjunctivitis (n (%))	90 (80.4%)	8 (7.1%)
Symptoms of gastroesophageal reflux (n (%))	38 (33.9%)	43 (38.4%)
Symptoms of OSAS (n (%))	16 (14.3%)	62 (55.4%)
Overweight or obese (n (%))	36 (32.1%)	4 (3.6%)
- **Obese (n (%))**	17 (15.2%)	
Eosinophils (/mm^3)	300 [200-600]	32 (28.6%)
Total IgE (kU/l)	277 [122.5-711]	40 (35.7%)
IgE Sensitivity		
- **Mites (n (%))**	68 (60.7%)	17 (15.2%)
- **Pollen (n (%))**	46 (41.1%)	23 (20.5%)
- **Birch (n (%))**	31 (27.7%)	23 (20.5%)
- **Cat or dog dander (n (%))**	40 (35.7%)	28 (25%)
Passive smoking (n (%))	26 (23.2%)	37 (33%)
Animals in the home (n (%))	35 (31.3%)	34 (30.4%)
Humidity or mold (n (%))	22 (19.6%)	36 (32.1%)
Pre-FEV1 (% of the theoretical value)	96 [82.5-105.8]	13 (11.6%)
FEV1/VC	91.6 [82.8 ; 97.4]	16 (14.3%)
Reversibility (%)	4.1 [0.7-8.4]	28 (25%)
RV/TLC	23 [17-27.4]	32 (28.6%)
FeNO (ppb)	24.3 [10.5-53.3]	72 (64.3%)
GINA		-
- **GINA 1-3 (n (%))**	28 (25%)	
- **GINA 4-5 (n (%))**	84 (75%)	
ICS dose (fluticasone equivalent in µg/d)	500 [37-500]	4 (3.6%)
Asthma control		
- **symptoms on exertion (n (%))**	79 (70.5%)	8 (7.1%)
- **daytime symptoms (n (%))**	49 (43.8%)	7 (6.3%)
- **nocturnal symptoms (n (%))**	40 (35.7%)	9 (8%)
- **number of days of Ventolin intake per week**	1 [1-7]	11 (9.8%)
Number of exacerbations per year	4 [1- 7]	13 (11.6%)

- number of severe exacerbations	2 [0-5]	9 (8%)
- frequent exacerbators (n (%))	70 (62.5%)	10 (8.9%)
- number of days of corticosteroids	6 [0-15]	19 (20%)
- emergency room consultations	0 [0-1.5]	15 (13.4%)
ACT score	13 [10-21]	65 (58%)
Asthma under control (n (%))	33 (29.5%)	5 (4.5%)
Reason for exploration		
- evocative symptoms (n (%))	53 (47.3%)	-
- poor control; good observance (n (%))	21 (18.8%)	
- severe asthma (n (%))	38 (33.9%)	
NIJMEGEN score	23 [15-29]	5 (4.5%)
Hyperventilation test (n (%))	108 (96.4%)	-
- **Baseline PCO$_2$ (mmHg)**	35 [34-37]	9 (8%)
- **Lowest PCO$_2$ (mmHg)**	19.5 [17-23]	8 (7.2%)
- **Time to return to baseline PCO$_2$ (min)**	4 [2-7]	4 (3.6%)

BMI: body-mass index, OSAS: obstructive sleep apnea syndrome, IgE: immunoglobulin E, FEV1: forced expiratory volume in the first second, VC: vital capacity, RV: residual volume, TLC: total lung capacity, ACT: asthma control test

Table 2. Comparison of the general characteristics of patients with a positive HVT and those with a negative HVT

Patients who had a HVT	HVT- (n = 34)	HVT+ (n = 74)	p
Sex M/F (n (%))	13/21 (38.2/61.8%)	45/29 (60.8/39.2%)	**0.03**
Age (years)	12.7 [9.3-14.7]	14.2 [12.6-16 .8]	**0.0003**
BMI (kg/m^2)	21 [16.4-23.2]	20.7 [18.3-23.3]	0.45
Overweight or obese (n (%))	11 (32.4%)	23 (31.1%)	0.81
Familial atopy (n (%))	24 (70.6%)	41 (55.4%)	0.23
Atopic dermatitis (n (%))	8 (23.5%)	22 (29.7%)	0.43
IgE-mediated food allergies (n (%))	2 (5.9%)	26 (35.1%)	**0.0004**
Allergic rhinoconjunctivitis (n (%))	27 (79.4%)	59 (79.7%)	0.75
- **Perennial**	14 (41.2%)	35 (47.3%)	**0.038**
- **Seasonal**	7 (20.1%)	27 (36.5%)	0.11
- **Persistent**	5 (14.7%)	23 (31.1%)	0.59
- **Moderate to severe**	9 (26.5%)	25 (33.8%)	0.65
Eosinophils (/mm^3)	400 [200-620]	300 [100-500]	0.37
Total IgE	499 [196-1077]	264 [99-634]	0.27
ICS (fluticasone equivalent in μg/d)	500 [500-500]	500 [319-500]	0.37

Pre-FEV1 (%)	96.1 [76-109.2]	95.4 [85.1-104]	0.72
Reversibility (%)	3.8 [0.1-8.4]	4 [1-7.8]	0.88
RV/TLC	22.2 [18.2-28.2]	23.2 [17-27.3]	0.83
GINA			
- **GINA 1- 3 (n (%))**	7 (20.6%)	18 (24.3%)	0.67
- **GINA 4- 5 (n (%))**	27 (79.4%)	56 (75.7%)	0.67
Number of exacerbations per year	4 [1.8-8.5]	4 [0.8-6.3]	0.51
- **frequent exacerbators (n (%))**	22 (64.7%)	46 (62.2%)	0.33
- **number of severe exacerbations**	3 [0-6]	2[0-4.5]	0.36
- **number of patients with severe exacerbations (n (%))**	21 (61.8%)	48 (64.9%)	0.97
- **number of days of corticosteroids**	9.5 [0-24.3]	6 [0-15]	0.82
- **number of emergency room consultations**	0 [0-2.3]	0 [0-1]	0.098
Asthma control			
- **symptoms on exertion (n (%))**	22 (64.7%)	53 (71.6%)	0.33
- **daytime symptoms (n (%))**	15 (44.1%)	31 (41.9%)	0.99
- **nocturnal symptoms (n (%))**	16 (47%)	22 (29.7%)	0.10
- **number of days of Ventolin intake per week**	0 [0-7]	1 [0-7]	0.67
ACT score	14 [10-22]	13 [10-20]	0.55
Asthma under control (n (%))	12 (35.3%)	21 (28.4%)	0.47
Reason for exploration			
- **suggestive symptoms (n (%))**	10 (29.4%)	40 (54.1%)	**0.018**
- **persistent symptoms; good observance (n (%))**	8 (23.5%)	13 (17.6%)	0.47
- **severe asthma (n (%))**	16 (47%)	21 (28.4%)	0.059
Nijmegen score	20 [12-25.8]	23 [16-32]	**0.04**
- **Nijmegen ≥ 23**	14 (41.2%)	40 (54.1%)	0.3
Baseline PCO_2 (mmHg)	36 [35-38]	35 [34-37]	**0.009**
Lowest PCO_2 (mmHg)	22.5 [19-26.5]	18 [17- 20]	**<0.0001**
Time to return to baseline PCO_2 (min)	1.5 [1-2.1]	5 [4-7]	**<0.0001**

BMI: body-mass index, OSAS: obstructive sleep apnea syndrome, IgE: immunoglobulin E, ISC: inhaled corticosteroids, FEV1: forced expiratory volume in the first second, VC: vital capacity, RV: residual volume, TLC: total lung capacity, ACT: asthma control test

Table 3. Sensitivity and specificity values according to the Nijmegen score threshold

Nijmegen score threshold	Sensitivity (%)	Specificity (%)
23	56.3	56.3
22	60.6	53.1
21	64.8	53.1
20	67.6	46.9
19	71.8	40.6
18	73.2	40.6
17	73.2	37.5