

SUPPLEMENTARY MATERIAL

Table S1. Baseline characteristics.

	Total	Omalizumab	Mepolizumab	Reslizumab	Benralizumab	<i>p value</i>
N (%)	206 (100.0)	81 (39.3)	65 (31.6)	14 (6.8)	46 (22.3)	
Age, years (mean±SD)	56 ± 13.0	55 ± 13.4	59 ± 11.2	53.5 ± 13.8	55 ± 11.7	0.1671
Gender, female, N (%)	117 (56.8)	48 (59.3)	34 (52.3)	8 (57.1)	27 (58.7)	0.8489
Body mass index (mean±SD)	27 ± 5.0	26.0 ± 4.3	27.1 ± 4.8	24.8 ± 4.9	28.0 ± 7.4	0.4061
Smokers, N (%)	13 (6.3)	3 (3.7)	5 (7.7)	2 (14.3)	1 (2.1)	0.2338
NSAID-exacerbated respiratory disease (N-ERD), N (%)	92 (44.7)	41 (50.6)	25 (38.5)	6 (42.8)	20 (43.5)	0.5284
Atopy, N (%)	128 (62.1)	55 (67.9)	31 (47.7)	12 (85.7)	30 (65.2)	0.0154
Onset of asthma, yr (mean±SD)	21 ± 13.0	21.0 ± 13.1	20.0 ± 11.4	26.4 ± 14.8	21.0 ± 14.0	0.4927
Onset of CRSwNP, yr (mean±SD)	14.4 ± 10.2	15.0 ± 10.8	14.0 ± 9.5	18.1 ± 13.2	15.0 ± 9.5	0.7907
Biologic treatment, yr (mean±SD)	3.7 ± 2.6	5.8 ± 3.1	2.7 ± 1.0	2.6 ± 0.9	1.9 ± 0.5	<0.0001
FEV1 (%), (mean±SD)	71.2 ± 24.6	74.0 ± 21.4	63.0 ± 22.8	58.6 ± 31.2	73.0 ± 18.2	0.4090
FeNO ppb, (mean±SD)	65.0 ± 53.1	58.2 ± 38.6	72.3 ± 65.7	59.5 ± 38.8	63.3 ± 53.7	0.9652
ACT questionnaire, (mean±SD)	16.1 ± 5.8	17.2 ± .15	16.1 ± 4.5	12.4 ± 4.7	16.4 ± 6.6	0.0165
Asthma exacerbations per year (mean±SD)	3.1 ± 2.4	3.3 ± 2.7	4.2 ± 2.1	3.71 ± 1.8	3.1 ± 2.1	0.0007
BEC, (cel/μL) (mean±SD)	541± 369	477 ± 315	652 ± 410	529 ± 355	509 ± 379	0.0406
Normosmia, N (%)	29 (14.1)	7 (8.6)	11 (16.9)	2 (14.0)	9 (19.6)	0.1863
Hyposmia, N (%)	70 (33.9)	26 (32.1)	17 (26.3)	5 (35.7)	22 (47.8)	0.1930
Anosmia, N (%)	107 (51.9)	48 (59.2)	37 (56.9)	7 (50.2)	15 (32.6)	0.0256
Grade of polyposis (0-4), median (IQR)	2 (0-4)	2 (0-4)	2 (0-4)	2 (0-4)	2 (0-4)	0.4624
Use of intranasal corticosteroids, N (%)	198 (91.9)	80 (98.8)	59 (90.8)	12 (85.7)	43 (93.5)	0.0956
Systemic corticosteroids, short cycles per year (mean±SD)	1.7 ± 2	2 ± 2.5	2 ± 2.2	1.4 ± 2.2	1 ± 1	0.4984
EES per year, median (IQR)	1 (0-2)	1 (0-2)	1 (0-2)	1 (0-2)	1 (0-2)	0.6627

N (number); SD (standard deviation); NSAID (non-steroidal anti-inflammatory drugs); yr (years); CRSwNP (chronic rhinosinusitis with nasal polyps); FeNO (fractional exhaled nitric oxide), ACT (asthma control test questionnaire); BEC (blood eosinophils count); IQR (interquartile range); EES (endoscopic endonasal surgery).

Table S2. Comparison of partial and total improvement groups with demographic characteristics and general data before and during biologic treatment.

	PARTIAL	TOTAL	NO IMPROV.	p value
N	38	37	131	
Demographic variables				
Gender, female, N (%)	17 (44.7)	21 (56.7)	79 (60.3)	0.2335
Age, years, (mean±SD)	55.0 ± 11.9	60.5 ± 10.1	55.7 ± 13.1	0.0916
BMI, (mean±SD)	26.0 ± 3.7	28.2 ± 4.6	26.7 ± 6.1	0.0859
Smokers, N (%)	3 (7.9)	2 (5.4)	8 (6.1)	0.8950
NSAID-exacerbated respiratory	18 (47.4)	16 (43.2)	58 (44.3)	0.9274
Atopy, N (%)	24 (63.2)	23 (62.2)	35 (26.7)	<0.0001
Onset of asthma, yr (mean±SD)	21.6 ± 13.5	19.3 ± 12.1	22.2 ± 13.7	0.6367
Onset of CRNwNP, yr (mean±SD)	14.9 ± 9.4	12.4 ± 8.1	15.7 ± 11	0.0267
Biologic treatment, yr (mean±SD)	3.6 ± 2.4	6.5 ± 19.4	6 ± 15	0.8764
Before biologic				
FEV ₁ (%), (mean±SD)	76.1 ± 21.1	71.4 ± 15.2	72.4 ± 23.2	0.6103
FeNO (ppb), (mean±SD)	69.0 ± 51.9	62.7 ± 67.8	64.2 ± 49.9	0.5510
ACT questionnaire, (mean±SD)	16.3 ± 4.6	15.8 ± 4.8	16.0 ± 5.3	0.9434
Asthma exacerbations/year (mean±SD)	3.6 ± 3.1	3 ± 2.2	3.1 ± 2.2	0.9230
BEC, cel/μL (mean±SD)	466 ± 295	631 ± 406	541 ± 376	0.2029
Grade of polyposis (0-4), median (IQR)	2 (1-3)	2 (1-3)	1 (0-2)	0.0708
Use of INCS, N (%)	37 (97.4)	37 (100.0)	120 (91.6)	0.1015
Systemic corticosteroids per year (short cycles)	2.5 ± 2.4	2.5 ± 2.5	1.3 ± 1.8	0.0007
EES per year, median (IQR)	2 (0-2.2)	0 (0-1.5)	1 (0-2)	0.0282
During biologic				
FEV ₁ (%), (mean±SD)	86.3 ± 20.5	84.9 ± 18.0	81.2 ± 21.0	0.3309
FeNO (ppb), (mean±SD)	48.0 ± 49.4	39.3 ± 33.4	53.4 ± 46.4	0.1663
ACT questionnaire (mean±SD)	22.6 ± 2.4	22.4 ± 3.0	22.1 ± 3.6	0.9978
Asthma exacerbations/year (mean±SD)	0.4 ± 0.9	0.1 ± 0.4	0.6 ± 1	0.0337
BEC, cel/μL (mean±SD)	108 ± 148	196 ± 264	195 ± 243	0.0827
Grade of polyposis (0-4), median (IQR)	0.5 (0-1)	0.5 (0-1)	0.5 (0-2)	0.7671
Use of INCS, N (%)	38 (100.0)	29 (78.4)	111 (84.7)	0.0156
Systemic corticosteroids per year (short cycles)	0.4 ± 0.8	0.1 ± 0.5	0.4 ± 0.8	0.0630
EES per year, median (IQR)	0 (0-0)	0 (0-0)	0 (0-0)	0.9945

N-ERD (NSAIDs exacerbated respiratory disease); NSAIDs (non-steroidal anti-inflammatory drugs); N (number); SD (standard deviation); CRSwNP (chronic rhinosinusitis with nasal polyps); yr (years); FEV1 (forced expiratory volume in 1 second); FeNO (fractional exhaled nitric oxide); ACT (asthma control test); BEC (blood eosinophil count); IQR (interquartile range); INCS (intranasal corticosteroid); EES (endoscopic endonasal surgery).

Table S3. Comparison of N-ERD and non-N-ERD groups with demographic characteristics and general data before and during biologic treatment.

	N-ERD	Non-N-ERD	<i>p value</i>
Demographic variables			
N	92	114	
Gender, female, N (%)	54 (58.7)	63 (55.3)	0.6722
Age, years (mean±SD)	56.0 ± 12.6	56.1 ± 12.5	0.9784
BMI (mean±SD)	27.1 ± 6.4	26.7 ± 4.7	0.8663
Smokers, N (%)	7 (7.6)	6 (5.3)	0.5703
Atopy, N (%)	56 (60.9)	72 (63.2)	0.7737
Onset of asthma, yr (mean±SD)	22.4 ± 13.6	19.9 ± 12.4	0.1945
Onset of CRNwNP (mean±SD)	16.8 ± 9.8	13.5 ± 10.4	0.0026
Biologic treatment, yr (mean±SD)	5.1 ± 12.2	4.6 ± 11.3	0.5035
Before biologic			
FEV ₁ (%), (mean±SD)	74.1 ± 20.2	72.1 ± 22.8	0.2632
FeNO (ppb) (mean±SD)	63.7 ± 60.1	65.8 ± 48.7	0.5024
ACT questionnaire (mean±SD)	15.9 ± 5.1	15.2 ± 5.2	0.6555
Asthma exacerbations/year (mean±SD)	3.1 ± 2.3	3.3 ± 2.5	0.3611
BEC, cel/μL (mean±SD)	544 ± 326	544 ± 402	0.6523
Normosmia, N (%)	6 (6.5)	23 (20.2)	0.0049
Hyposmia, N (%)	33 (35.9)	37 (32.5)	0.6582
Anosmia, N (%)	53 (57.6)	54 (47.4)	0.1619
Grade of polyposis (0-4), median (IQR)	2 (0.5-3)	1.5 (1-2.5)	0.4756
Use of INCS, N (%)	87 (94.6)	107 (93.9)	>0.9999
Systemic corticosteroids per year (short cycles)	1.8 ± 2.4	1.7 ± 2.0	0.7274
EES per year, median (IQR)	1 (1-2)	1 (0-2)	<0.0001

During biologic	FEV ₁ (%), (mean±SD)	83.6 ± 18.9	82.2 ± 21.7	0.6442
	FeNO (ppb) (mean±SD)	49.2 ± 42.5	51.0 ± 47.6	0.6908
	ACT questionnaire (mean±SD)	22.5 ± 2.9	22.2 ± 3.6	0.9957
	Asthma exacerbations/year (mean±SD)	0.5 ± 0.9	0.5 ± 1.0	0.9359
	BEC, cel/μL (mean±SD)	202 ± 244	161 ± 225	0.1253
	Normosmia, N (%)	20 (21.7)	42 (36.7)	0.0221
	Hyposmia, N (%)	44 (47.8)	44 (38.6)	0.2038
	Anosmia, N (%)	28 (30.4)	28 (24.5)	0.3505
	Grade of polyposis (0-4), median (IQR)	0.5 (0.0-2.0)	0.5 (0-1.5)	0.9367
	Use of INCS, N (%)	81 (88)	97 (85.1)	0.6832
	Systemic corticosteroids per year (short cycles)	0.3 ± 0.7	0.4 ± 0.8	0.4914
	EES per year, median (IQR)	0 (0-0)	0 (0-0)	0.1640

N-ERD (NSAIDs exacerbated respiratory disease); NSAIDs (non-steroidal anti-inflammatory drugs); N (number); SD (standard deviation); CRSwNP (chronic rhinosinusitis with nasal polyps); yr (years); FEV₁ (forced expiratory volume in 1 second); FeNO (fractional exhaled nitric oxide); ACT (asthma control test); BEC (blood eosinophil count); IQR (interquartile range); INCS (intranasal corticosteroid); EES (endoscopic endonasal surgery).