

# German Asthma Net: Characterization of responders to anti-IL-5 and anti-IL-5(R) therapy

German Asthma Net e.V. 

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Treatments targeting interleukin 5 (IL-5) and the IL-5 receptor IL-5(R) include **mepolizumab, reslizumab, and benralizumab**. We aimed to characterize responders to anti-IL-5/IL-5(R) therapy in patients from the **real-life, international registry German Asthma Net (GAN)**. Statistic tests used were Welch's ANOVA with Dunnett's corr., or  $\chi^2$  tests.

## Results:

Baseline	Non-responders, n=47		Responders, n=274		Super-responders, n=183		Remission, n=124		p-value
Age, years	55.7 ± 12.2	47	56.9 ± 12.4	274	56.4 ± 11.9	183	55.2 ± 12.6	124	0.6
BMI, kg/m <sup>2</sup>	27.9 ± 5.7	47	26.8 ± 5.4	274	27.0 ± 5.2	183	26.3 ± 4.6	124	0.4
Blood eosinophils, G/L	0.3 ± 0.2	28	0.6 ± 1.0	213	0.6 ± 0.5	140	0.6 ± 0.5	98	<0.001
FeNO, ppb	40.5 ± 24.9	22	59.8 ± 57.9	155	54.2 ± 53.4	112	60.8 ± 53.9	77	0.032
Exacerbations/year	1.8 ± 2.7	45	4.7 ± 4.8	271	3.6 ± 4.0	179	3.6 ± 4.2	123	<0.001
Maintenance OCS, mg	3.1 ± 5.1	47	6.9 ± 12.4	274	3.6 ± 8.1	182	3.6 ± 7.8	123	0.001
Total IgE, IU/mL	473 ± 923	17	252 ± 325	144	263 ± 299	101	278 ± 318	71	0.8
Female, % of total*	61.7%		53.3%		52.5%		47.6%		0.086
CRSwNP, % of total*	61.7%		65.3%		64.5%		68.5%		0.8
Uncontrolled asthma (ACQ)†	81.4%		81.2%		76.3%		70.5%		0.2
Uncontrolled asthma (ACT)†	81.8%		80.9%		76.6%		67.5%		0.032
Poor quality of life (mAQLQ)†	83.3%		85.9%		83.3%		77.8%		0.4
Severe exacerbations*	34.5%		49.6%		44.2%		42.1%		0.3
Maintenance OCS use*	34.0%		50.4%		29.0%		31.5%		<0.001

p-values denote difference between 4 groups. \*: p-value from  $\chi^2$  test †: ACQ score  $\geq 1.5$ ;  $\chi^2$  test, ACT score  $< 20$ ;  $\chi^2$  test, mAQLQ score  $< 5.4$ ;  $\chi^2$  test. BMI, body mass index. CRSwNP, chronic sinusitis with nasal polyps. ICS: inhaled corticosteroids, in  $\mu\text{g}$  Beclomethasone equivalent.

**Type 2 inflammation biomarkers:** Blood eosinophil counts were highly significantly higher in responders, super-responders, and patients with remission at baseline, and **FeNO** was also significantly higher in these groups. **Responders had significantly higher systemic corticosteroid doses and exacerbation rates** at baseline than non-responders. Asthma control (ACT) and quality of life (mAQLQ) were significantly different at baseline in the groups divided by therapy response.

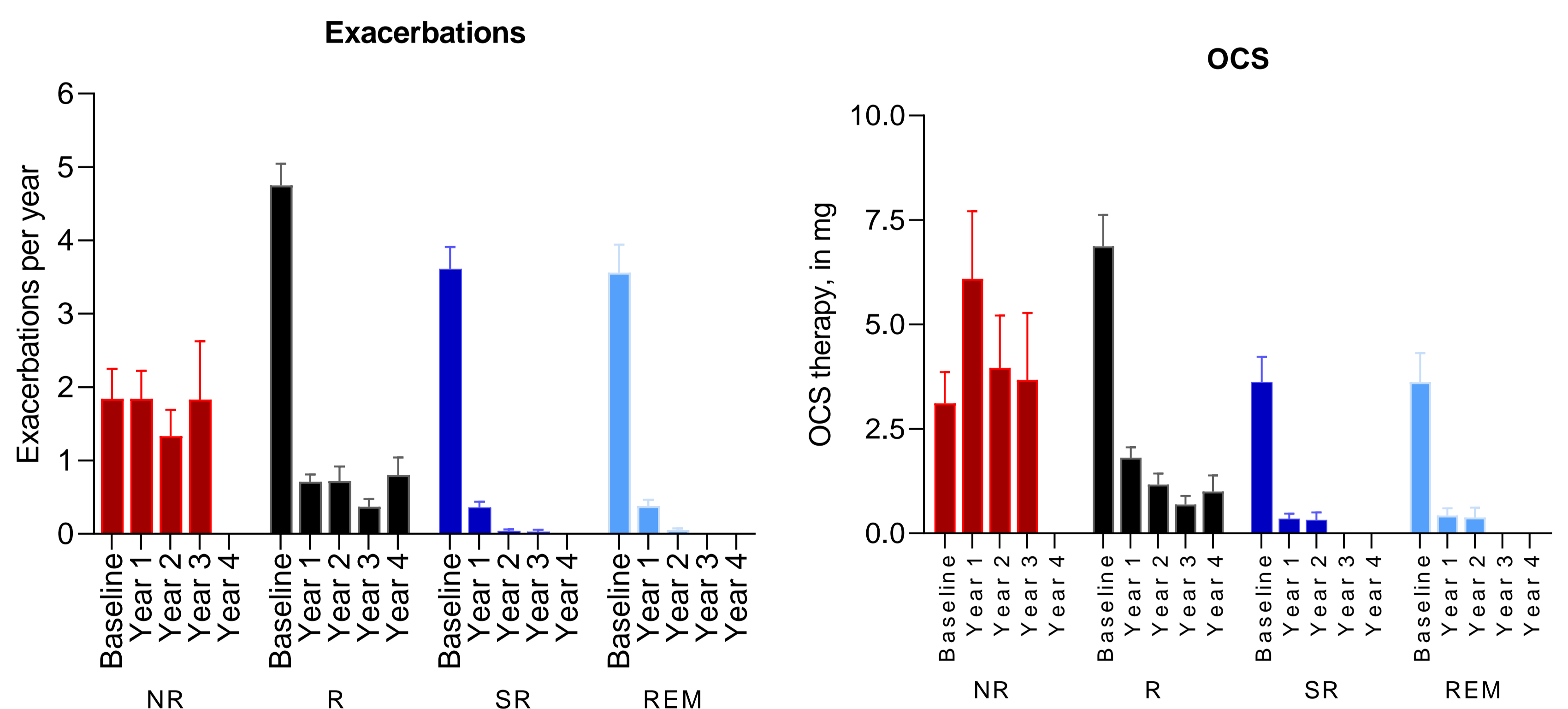
### Definitions:

**Responder (R):**  $\geq 50\%$  reduction in exacerbation rate or corticosteroid dose after biologics start,  $\geq 1$  year and up to 7 years in the current cohort.

**Non-responder (NR):**  $< 50\%$  reduction

**Super responder (SR):** Like R, but: **Zero** systemic corticosteroids & exacerbations.

**Remission (REM):** Like SR, but **plus ACT score  $\geq 20$** . (Milger et al. JACI:IP 2023)



## Conclusion:

Anti-IL-5/IL-5(R) therapy improves exacerbations and corticosteroid dependency **especially in patients with a high disease burden (high OCS and exacerbation rates), high blood eosinophil counts, and high FeNO.**

Patients with super responders and remission outcomes show better asthma control and quality of life at baseline.