Supplementary file 1. Acknowledgements.

This study was performed on behalf of the Dutch Registry of Adult Patients with Severe asthma for Optimal Disease management (RAPSODI). RAPSODI contributors:

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Supplementary Figure S1: Proportion of patients with an OCS dispensing.

Legend to Supplementary Figure 1: This figure shows the percentage of patients with an OCS dispensing after initiating anti-IL-5/5Ra per 3 months period. The bars represent the total population and are built up by patients with first OCS exposure ≤12 months (green), 12-21 months (blue) or >21 months (red) before anti-IL-5/5Ra initiation. After initiating anti-IL-5/5Ra, the proportion of patients with an OCS dispensing gradually decreases.

Abbreviations: IL= Interleukin, OCS = Oral corticosteroids.
Supplementary table S1: Comparison included vs. excluded patients.

|                                | Included (N=389) | Excluded (N=59) | P-value |
|--------------------------------|------------------|-----------------|---------|
| Age (y)*                        | 57 (48-64)       | 57 (46-64)      | 0.614   |
| Gender; male, %                 | 45.5             | 42.4            | 0.676   |
| Body mass index (kg/m²)*        | 27.3 (24.3-29.9) | 28.8 (24.1-32.2)| 0.095   |
| Former smoker, %                | 42.0             | 42.4            | 0.926   |
| Pack years in smokers (y)*      | 10 (5-20)        | 12 (7-25)       | 0.291   |
| Age of onset of eosinophilic asthma (y)* | 44 (23-53)   | 39 (19-49)      | 0.216   |
| Late onset asthma, %            | 75.6             | 69.5            | 0.336   |
| Non-atopic asthma, %            | 53.4             | 60.6            | 0.504   |
| Nasal polyposis, %              | 50.6             | 45.7            | 0.207   |

*: median (IQR).
Supplementary Table S2. Comorbidities.

| Comorbidity                              | N=389 |
|------------------------------------------|-------|
| Atopic dermatitis (%)                    | 10.6  |
| Allergic Rhinoconjunctivitis (%)         | 20.4  |
| Chronic Rhinosinusitis (%)               | 69.2  |
| Nasal polyposis (%)                      | 50.6  |
| Aspirin intolerance (%)                  | 10.6  |
| Depression (%)                           | 10.1  |
| Gastroesophageal reflux disease (%)      | 17.5  |
| Bronchiectasis (%)                       | 18    |
| Obstructive sleep apnea (%)              | 11.1  |
| Skin abnormality (%)*                    | 12.9  |
| Weight gain (%)*                         | 27.6  |
| Osteoporosis (%)*                        | 12.6  |
| Hypertension (%)*                        | 5.4   |
| Cataract (%)*                            | 2.3   |
| Diabetes mellitus (%)*                   | 4.1   |
| Adrenal insufficiency (%)*               | 1.5   |

* Possibly related to the use of OCS.

Abbreviation: OCS = Oral corticosteroids.
Supplementary Table S3. Univariate binary logistic regression analysis assessing associations between baseline variables and complete OCS elimination after 2 years of anti-IL-5/5Ra.

| Risk factor                                      | OR Univariate | 95%CI       | P-value |
|--------------------------------------------------|---------------|-------------|---------|
| Age                                              | 1.0           | (1.0-1.1)   | 0.125   |
| Gender                                           |               |             |         |
| Male                                             | 1.1           | (0.73-1.6)  | 0.671   |
| Body mass index                                  | 0.98          | (0.94-1.0)  | 0.258   |
| Former smoker                                    |               |             |         |
| Yes                                              | 1.4           | (0.92-2.1)  | 0.115   |
| Pack years                                       | 0.99          | (0.97-1.0)  | 0.485   |
| Age of onset of eosinophilic asthma               | 1.0           | (0.99-1.0)  | 0.132   |
| Type of asthma onset                             |               |             |         |
| Late onset                                       | 0.79          | (0.49-1.2)  | 0.307   |
| Type of asthma                                   |               |             |         |
| Non-atopic                                       | 0.91          | (0.60-1.4)  | 0.653   |
| Nasal polyposis                                  |               |             |         |
| Yes                                              | 1.2           | (0.75-1.8)  | 0.517   |
| Number of exacerbations in previous year         |               |             | 0.219   |
| 0-1 Exacerbations                                | 1             |             |         |
| 2-5 Exacerbations                                | 0.77          | (0.47-1.3)  | 0.316   |
| >5 Exacerbations                                 | 0.60          | (0.31-1.1)  | 0.081   |
| OCS maintenance therapy prior to anti-IL-5/5Ra therapy | |         |         |
| Yes                                              | 0.37          | (0.25-0.57) | <0.001  |
| OCS maintenance dose (mg/day)                    | 0.99          | (0.96-1.03) | 0.754   |
| Blood Eosinophils (10^9/L)                       | 1.3           | (0.86-2.0)  | 0.203   |
| Blood eosinophils in categories (10^9/L)         |               |             | 0.023   |
| <0.150                                           | 1             |             |         |
| ≥0.150-0.300                                     | 1.5           | (0.72-3.1)  | 0.284   |
| ≥0.300-0.450                                     | 2.2           | (1.1-4.2)   | 0.025   |
| ≥0.450                                           | 2.3           | (1.3-4.0)   | 0.003   |
| FeNO (ppb)                                       | 1.006         | (1.000-1.011)| 0.045   |
| FeNO (ppb)                                       |               |             | 0.094   |
| <25                                              | 1             |             |         |
| 25-50                                            | 0.89          | (0.48-1.7)  | 0.701   |
| ≥50                                              | 1.6           | (0.89-2.8)  | 0.116   |
| FEV₁ (%pred)                                     | 0.99          | (0.98-1.0)  | 0.052   |
| FEV₁ (%pred)                                     |               |             |         |
| ≥80%                                             | 0.7           | (0.46-1.1)  | 0.088   |
| Cumulative OCS dose at 2 years before anti-IL-5/5Ra therapy | |         | <0.001   |
| Quartile 1 (≤1.1g)                               | 1             |             |         |
| Quartile 2 (1.1-2.7g)                            | 0.40          | (0.22-0.75) | 0.004   |
| Quartile 3 (2.7-5.5g)                            | 0.25          | (0.13-0.46) | <0.001  |
| Quartile 4 (≥5.6g) | 0.11 | (0.06-0.21) | <0.001 |
|-------------------|------|-------------|---------|
| **OCS dose during 3 months prior to anti-IL-5/5Ra therapy** | <0.001 |
| Quartile 1 (≤0.03g) | 1 | | |
| Quartile 2 (0.04-0.45g) | 0.55 | (0.30-0.98) | 0.044 |
| Quartile 3 (0.45-0.9g) | 0.40 | (0.22-0.72) | 0.002 |
| Quartile 4 (≥0.91g) | 0.21 | (0.11-0.39) | <0.001 |
| **Start year of anti-IL-5/5RA therapy** | <0.001 |
| 2015-2016 | 1 | | |
| 2017 | 1.8 | (1.1-3.0) | 0.032 |
| 2018 | 2.9 | (1.8-4.9) | <0.001 |
| **First OCS exposure before anti-IL-5/5Ra therapy** | <0.001 |
| ≤12 months | 1 | | |
| 12-21 months | 0.3 | (0.15-0.59) | <0.001 |
| >21 months | 0.29 | (0.16-0.54) | <0.001 |
| **Atopic dermatitis** | | | |
| Yes | 1.1 | (0.55-2.1) | 0.857 |
| **Allergic rhinoconjunctivitis** | | | |
| Yes | 1.4 | (0.82-2.4) | 0.221 |
| **Chronic rhinosinusitis** | | | |
| Yes | 1.5 | (0.91-2.5) | 0.116 |
| **Aspirin intolerance** | | | |
| Yes | 1.5 | 0.77-3.0 | 0.228 |
| **Depression** | | | |
| Yes | 1.5 | (0.74-2.9) | 0.268 |
| **Gastroesophageal reflux disease** | | | |
| Yes | 1.2 | (0.68-2.1) | 0.545 |
| **Bronchiectasis** | | | |
| Yes | 0.64 | (0.37-1.1) | 0.105 |
| **Obstructive sleep apnea** | | | |
| Yes | 0.64 | (0.33-1.2) | 0.186 |

Abbreviations: FeNO: Fractional exhaled Nitric Oxide, FEV1: Forced Expiratory Volume in 1 second, IL: Interleukin, OCS: Oral corticosteroids, OR: Odds Ratio.