Managing patients with type 2 severe asthma: Biologics in the clinic

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How to assess the severe asthma phenotype

- Assess the severe phenotype and factors contributing to symptoms, quality of life and exacerbations

Assess the severe phenotype during high-dose ICS treatment (or lowest possible dose of OCS)

Could patient have type 2 airway inflammation?

- Blood eosinophils ≥150/µl, and/or
- FeNO ≥20 ppb, and/or
- Sputum eosinophils ≥2%, and/or
- Asthma is clinically allergy-driven, and/or
- Need for maintenance OCS

Investigate for comorbidities/differential diagnoses and treat/refer as appropriate

Consider need for social/psychological support

Involve MDT care (if available)

Invite patient to enrol in registry (if available) or clinical trial (if appropriate)

FeNO, fraction of exhaled nitric oxide; MDT, multidisciplinary team; OCS, oral corticosteroids; ICS, inhaled corticosteroids.
Global Initiative for Asthma, 2019. Available at www.ginasthma.org (Accessed February 2020).

When to consider add-on type 2 targeted biologic therapy

Consider add-on type 2 targeted biologic treatment for patients with severe **asthma with exacerbations** despite high-dose ICS-LABA +/- regular oral corticosteroids:

- When biomarkers suggest active type-2 airway inflammation
- For omalizumab, evidence of a perennial allergy (i.e. house dust mite) and appropriate serum IgE and weight
- Need maintenance OCS

Consider local payer eligibility criteria and predictors of response when choosing between available therapies

Also consider cost, dosing frequency, route (SC or IV), patient preference

ICS, inhaled corticosteroids; IV, intravenous injection; LABA, long-acting beta 2-agonist; OCS, oral corticosteroids; SC, subcutaneous injection.

Global Initiative for Asthma, 2019. Available at www.ginasthma.org (Accessed February 2020).

Which biologic is appropriate to start first?

Is the patient eligible for anti-IgE for severe asthma?

- Sensitization on skin prick testing or specific IgE
- Total serum IgE and weight within dosage range
- Exacerbations in last year

What factors may predict a good response to anti-IgE?

- Blood eosinophils 260/µl
- FeNO ≥20 ppb
- Allergen-driven symptoms
- Childhood-onset asthma

Is the patient eligible for anti-IL5/IL5R for severe eosinophilic asthma?

- Exacerbations in last year
- Blood eosinophils ≥300/µl

What factors may predict a good response to anti-IL5/IL5R?

- Higher blood eosinophils
- More exacerbations in previous year
- Adult-onset of asthma
- Nasal polyposis

Is the patient eligible for anti-IL4R?

… for severe eosinophilic asthma?

- Exacerbations in last year
- Blood eosinophils ≥150/µl or FeNO ≥25 ppb

… or because of need for maintenance OCS?

- Presence of type-2 associated comorbidities (i.e. nasal polyps)

What factors may predict a good response to anti-IL4R?

- Higher blood eosinophils
- Higher FeNO

Anti-IL4R may also be used to treat:

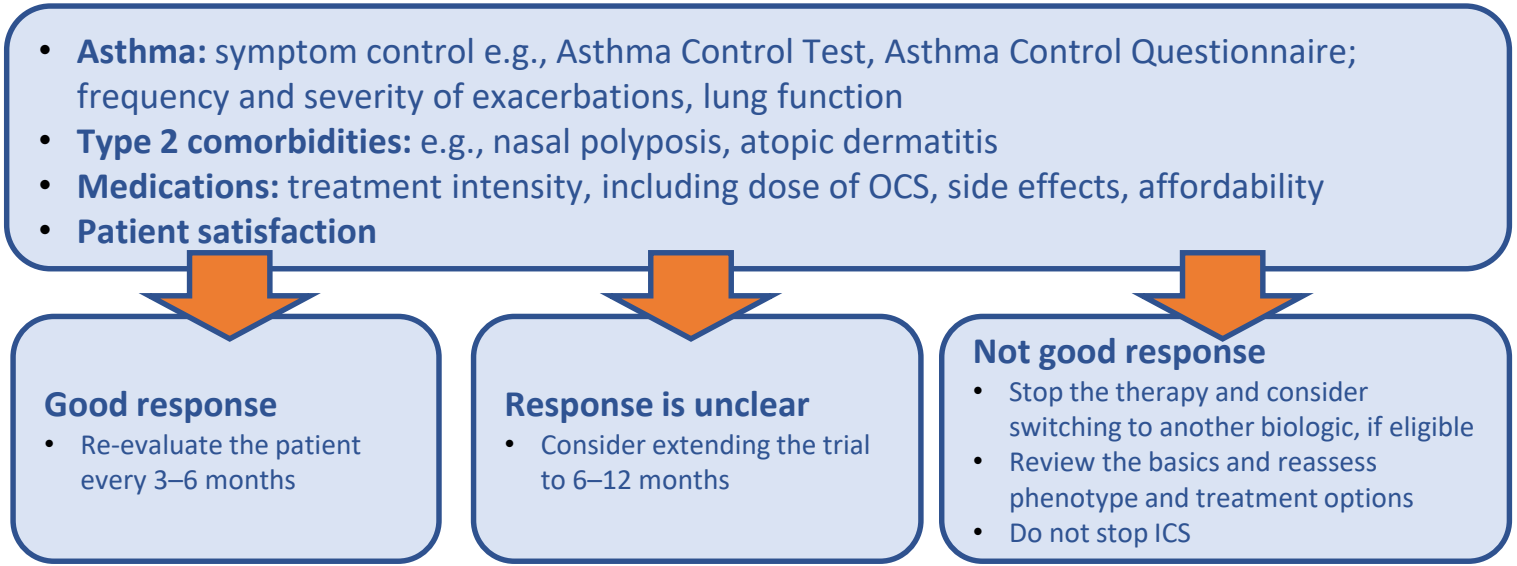
- Moderate/severe atopic dermatitis
- Nasal polyposis

FeNO, fraction of exhaled nitric oxide; ICS, inhaled corticosteroids; Ig, immunoglobulin; IL, interleukin; IL4R, IL-4 receptor; IL5R, IL-5 receptor; OCS, oral corticosteroids.

Global Initiative for Asthma, 2019. Available at www.ginasthma.org (Accessed February 2020).

How to manage and monitor type 2 severe asthma

- Review the patient's response to add-on biologic type 2 targeted therapy after 4 months and every 3–6 months for ongoing care, including:



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Severe type 2 asthma: a case report

- 35-year-old bank worker with three children under 5 years
- Recently separated and unable to work
- Persistent rhinosinusitis and nasal polyposis for 6 years
- Increasingly severe bouts of wheeze, breathlessness and cough over 3 years; reasonably well between episodes
- Exacerbations monthly. Hospitalised three times with severe symptoms; monitored on ICU on one occasion
- Non-atopic. FeNO 155 ppb; blood eosinophils 600 cells/µL. Spirometry: 2.1/3.4 increasing to 2.3/3.5 (predicted 2.8/3.5)
- On Step 5 treatment (Symbicort Turbohaler® 400/12, 2 puffs BID, montelukast, prednisolone 20 mg OD) but higher dose prednisolone courses needed monthly
- Side effects included 70 lbs weight gain, depression, sleep disturbance, menstrual disturbance

Severe type 2 asthma: progress

- Randomised to dupilumab in a phase III trial
- Able to wean prednisolone
- 56 lbs weight loss; marked reduction in other side effects
- Improved upper airway symptoms
- FEV_1 improved by 400 ml

BID, twice a day; FeNO, fraction of exhaled nitric oxide; FEV_1, forced expiratory volume in one second; ICU, intensive care unit; OD, once a day.
Case report provided by presenter.