



Difficult-to-manage asthma Desktop Helper No2 (Biologics)

Case study 2: Bernadette

Professor Liam Heaney & Garry McDonald

GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



Desktop-helper No. 2 on difficult-to-manage asthma



- A practical guide to improve difficult-to-manage asthma in primary care
- How to identify a person with difficult-to-manage asthma?
 - Ensure that the diagnosis is correct
 - Find and manage comorbidities
- What should you check when conducting a structured review?



A practical guide to improve difficult-to-manage asthma in primary care

Difficult-to-manage asthma occurs either when the person or their clinician finds control and treatment challenging, despite the (apparent) best possible treatment. This leads to the person facing difficulties dealing with some of the following:

- Daytime asthma symptoms, more than twice/week
- Any night awakening due to asthma-related symptoms
- More than two exacerbations per year requiring rescue systemic corticosteroids¹
- Frequent use of SABA (≥3 canisters per year or ≥3 times per week)
- Poor control despite prescription of high-dose ICS often in combination with LABA/LAMA or use of OCS¹
- Frequent primary care out-of-hours contacts (one or more per month)

ICS inhaled corticosteroid, SABA short-acting beta-agonist, LABA long-acting beta-agonist, LAMA long-acting muscarinic antagonist, OCS oral corticosteroid

ASTHMA: A PROBLEM THAT CAN BE MANAGED

Studies estimate that in primary care about one out of every six people living with asthma have difficult-to-manage asthma, and of those, between a quarter and a half will have severe asthma.^{2,3} Having difficult-to-manage asthma puts people at higher risk of exacerbations and even death, which are preventable with effective management. Similarly, they are at greater risk of steroid-related adverse effects (if treated with high-dose ICS or avoidable courses of OCS or low-dose OCS over a period of time), and their morbidity and health costs are disproportionately higher. People with well-controlled asthma have a better quality of life, reduced symptoms and exacerbations, reduced hospital visits and admissions and lower risk of premature death.^{4,7} But most importantly, difficult-to-manage asthma can be managed using a structured approach.⁸ People with asthma and clinicians should collaborate to improve asthma control, especially those with difficult-to-manage asthma, supporting the individual to take an active role in setting goals and targets, self-monitoring, and adopting a healthier lifestyle. This guide provides practical support to primary care and other community healthcare professionals to improve the care of people with difficult-to-manage asthma and to avoid unnecessary referrals of patients who could be better managed in primary care.

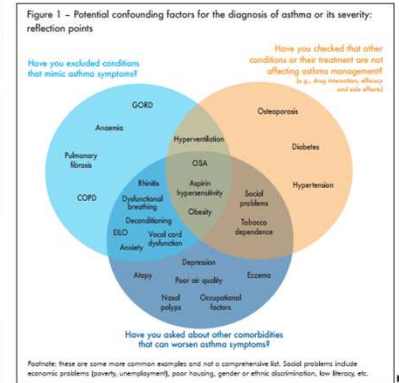
HOW TO IDENTIFY A PERSON WITH DIFFICULT-TO-MANAGE ASTHMA?

Ensure that the diagnosis is correct

Over one-third of people living with asthma have an incorrect diagnosis.⁹⁻¹³ Confirm that the person really has asthma before stepping up treatment as a surprising number of people diagnosed and treated for asthma (from 12 to 30%)¹⁴ either do not

have the disease or have it in association with other conditions causing persistent symptoms (see below).^{15,16} Potential confounding factors for the diagnosis of asthma or its severity are dysfunctional breathing, anxiety, exercise-induced laryngeal obstruction (EILO), vocal cord dysfunction (VCD), obesity and low level of fitness (deconditioning) (Figure 1). All of which may also co-exist with asthma. Diagnosis can be achieved by reviewing clinical history; the diagnostic probability is significantly increased using a lung function

More information on diagnosis
 DH 15 - The 'jigsaw puzzle' approach to building a diagnostic picture of asthma in primary care over time
 DH 14 - Quick guide to spirometry
 Spirometry Simplified (pilot)



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content

The desktop-helper



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



Learning Objectives

What is Difficult-to-manage
Asthma?

Identify what cohort of you patients have difficult to manage
asthma

Confounding factors

Understand about confounding factors in asthma diagnosis and
how they can mask a diagnosis and the severity of asthma

Risks of uncontrolled asthma
and its management

Uncontrolled asthma carries the risk of exacerbation,
hospitalisation and death. Inappropriate management with
high dose ICS and OCS carries its own risk too

Structured Asthma Review

A regular and planned structured review is the only way to
improve the detection and care of people living with difficult-
to-manage asthma

When to refer for specialist
assessment

At what stage should you refer, what you should do before
referral and what to convey in a referral letter

GSK provided an unrestricted educational grant to support the
development of this case study but did not contribute to its content



Desktop Helper No2: Difficult-to-manage asthma

What should you check when conducting a structured review?

- Control of asthma
- Tobacco dependence
- Patient education and self-monitoring
- Aggravating factors and triggers
- Pharmacotherapy
- Adherence and inhaler technique
- Obesity
- Psychological support
- Referral for specialist assessment

International Primary Care
IPCRG work locally collaborate globally
Respiratory Group

DESKTOP HELPER
No. 2 April 2024

A practical guide to improve difficult-to-manage asthma in primary care

Difficult-to-manage asthma occurs either when the person or their clinician finds control and treatment challenging, despite the (apparent) best possible treatment. This leads to the person facing difficulties dealing with some of the following:

- Any night awakening due to asthma-related symptoms
- Daytime asthma symptoms, more than twice/week
- More than two exacerbations per year requiring rescue systemic corticosteroids¹
- Frequent use of SABA (≥3 consults per year or ≥2 times per week)
- Poor control despite prescription of high-dose ICS often in combination with LABA/LAMA or use of OCS²
- Frequent primary care out-of-hours contacts (once or more per month)

ICS inhaled corticosteroid, SABA short-acting beta₂-agonist, LABA long-acting beta₂-agonist, LAMA long-acting muscarinic antagonist, OCS oral corticosteroid

ASTHMA: A PROBLEM THAT CAN BE MANAGED
Studies estimate that in primary care about one out of every six people living with asthma have difficult-to-manage asthma, and of those, between a quarter and a half will have severe asthma.^{3,4} Having difficult-to-manage asthma puts people at higher risk of exacerbations and even death, which are preventable with effective management. Symptoms that are of greater risk of steroid-related adverse effects (if treated with high-dose ICS or avoidable courses of OCS or low-dose OCS over a period of time), and their morbidity and health costs are disproportionately higher. People with well-controlled asthma have a better quality of life, reduced symptoms and exacerbations, reduced hospital visits and admissions and lower risk of premature death.^{5,6} But most importantly, difficult-to-manage asthma can be managed using a structured approach.⁷

People with asthma and clinicians should collaborate to improve asthma control, especially those with difficult-to-manage asthma, supporting the individual to take an active role in setting goals and targets, self-monitoring, and adopting a healthier lifestyle. This guide provides practical support to primary care and other community healthcare professionals to improve the care of people with difficult-to-manage asthma and to avoid unnecessary referrals of patients who could be better managed in primary care.

HOW TO IDENTIFY A PERSON WITH DIFFICULT-TO-MANAGE ASTHMA?
Ensure that the diagnosis is correct
Over one-third of people living with asthma have an incorrect diagnosis.^{8,9} Confirm that the person really has asthma before stepping up treatment as a surprising number of people diagnosed and treated for asthma (from 12 to 50%)¹⁰ either do not

have the disease or have it in association with other conditions causing persistent symptoms (see below).^{11,12}

Potential confounding factors for the diagnosis of asthma or its severity are dysfunctional breathing, anxiety, exercise-induced laryngeal obstruction (EILO), vocal cord dysfunction (VCD), obesity and low level of fitness (deconditioning) (Figure 1). All of which may also co-exist with asthma. Diagnosis can be achieved by reviewing clinical history, the diagnostic probability is significantly increased using a lung function

More information on diagnosis
DH 13 - The 'signpost' approach to building a diagnostic picture of asthma in primary care over time
DH 14 - Quick guide to spirometry
Spirometry Simplified (pdf)

Figure 1 - Potential confounding factors for the diagnosis of asthma or its severity: reflection points

Have you excluded conditions for asthma symptoms?
Have you checked that other conditions or their treatment are not affecting asthma management (e.g. drug interactions, diet, and an effect)?
Have you asked about other comorbidities that can worsen asthma symptoms?
Note: there are some more common examples and not a comprehensive list. Social & economic problems (poverty, unemployment, poor housing, gender or ethnic discrimination)

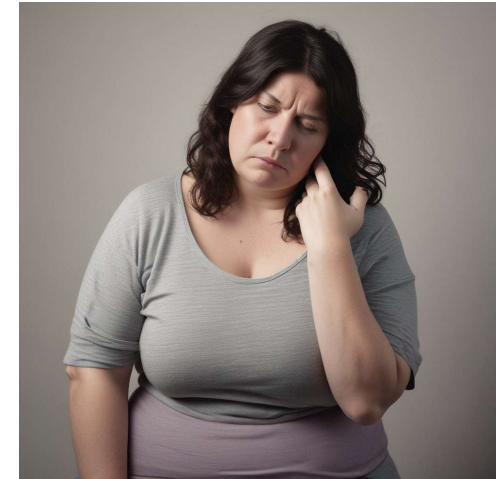
Primary Care
IPCRG Respiratory Group
ASTHMA RIGHT CARE

GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



Bernadette

- ❱ 42-year-old woman
- ❱ Diagnosed with asthma in 1999 in another practice
- ❱ Non smoker
- ❱ Weight 90kg, Height 154cm, BMI 38
- ❱ Recently registered with practice as moved to area for new job
- ❱ Previously self employed in IT, now has a permanent job



Bernadette – Presentation

- As a new patient with a current asthma diagnosis, an annual asthma review was requested with the patient upon registering.
- She was requiring a prescription for further supplies of medication for her asthma.
- Need to confirm her diagnosis and appropriate pharmacotherapy, identify triggers, manage her concerns based on her understanding.
- Her biggest concern was getting her asthma controlled as she was previously self employed, and does not want to lose her new job.










Bernadette – Medical History

- In previous year, 3 admissions and then ICU with ventilation
- 6 courses of steroids in 6 months – persistent disabling symptoms
- SABA PRN, often 4-5x times per day and disturbed most nights
- History of anaphylaxis - no cause identified
- Atopic eczema and hay fever from childhood
- Nasal polyps - prior recurrent surgery with last surgery 2 years previously



Bernadette – Current Medication

-  ICS [high dose]/LABA inhaler BD
-  LAMA inhaler OD
-  Topical corticosteroid nasal spray OD
-  SABA inhaler as needed
-  LTRA OD
-  Slow-release theophylline BD
-  Oral prednisolone 7.5 mg OD

GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



Clinical examination / investigations

- Weight = 90 kg; height 154 cm - BMI = 38
- ACQ-6 = 3.8, ACT = 12
- FeNO = 52ppb
- Spirometry FEV₁ 1.65L 62%
- Inhaler technique checked, few minor corrections
- Currently symptomatic



Diagnosis

- Daytime asthma symptoms, more than twice a week
- Any night awakening due to asthma-related symptoms
- More than two exacerbations per year requiring rescue OCS
- Frequent use of SABA (≥ 3 canisters per year or ≥ 3 times per week)
- Poor control despite prescription of high-dose ICS often in combination with LABA or MA or use of OCS
- Frequent primary care out-of-hours contacts (one or more per month)



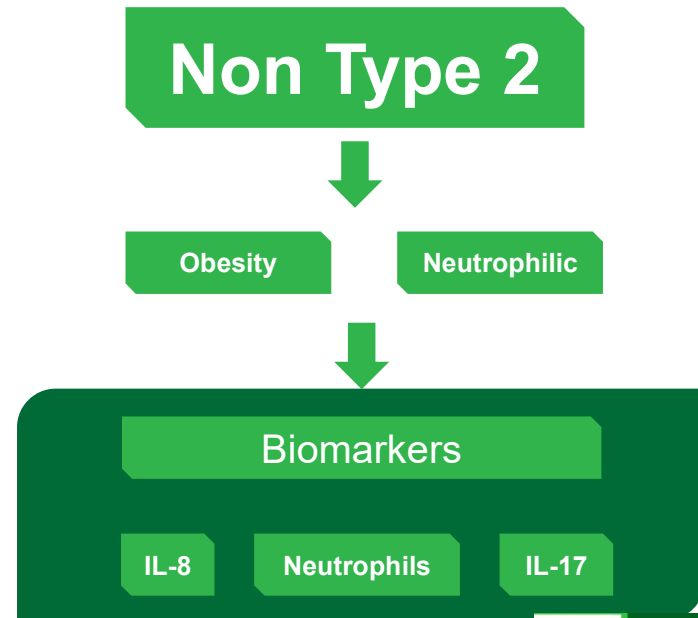
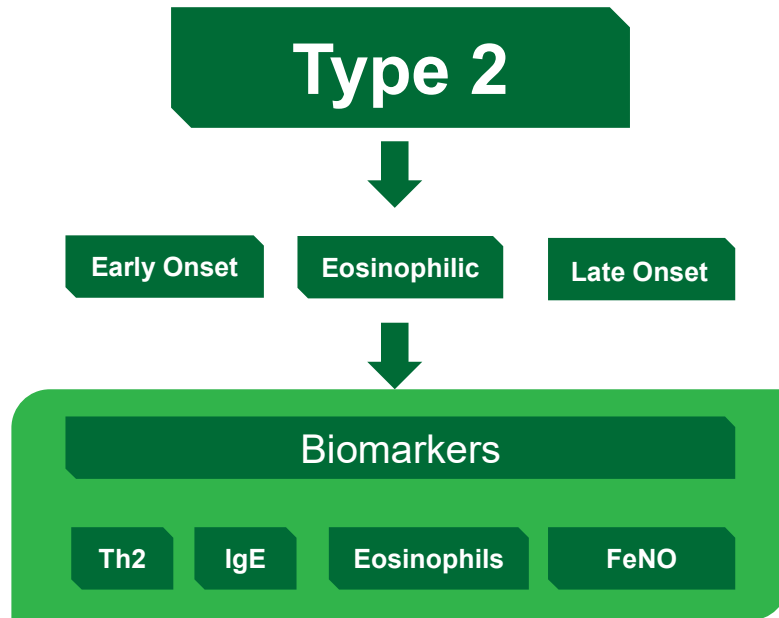
SEVERE ASTHMA

Venkatesan P. 2023 GINA report
2023 Jul;11(7):589. doi:10.1183/16997163.2023.04711



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content

Severe Asthma Phenotypes



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



Management

- At the time of initial presentation, the patient was symptomatic, a short course of OCS was prescribed 40mg Prednisolone for 5 days
- A follow up appointment was made for 1 months time to perform more tests and consider referral to secondary/tertiary specialist care
 - RAST positive to house dust mite, animal epithelia mix, food mix
 - FeNO 34ppb
 - Peak Flow (asymptomatic) 490L/min, PAAP written
 - Eosinophil count = 120 cells/ μ L previously 620 cells/ μ L when OCS naïve
 - Spirometry FEV₁ 2.10L (79%), FVC of 3.04L (94%), ratio 0.69
 - ACQ-6 = 3.2 (from 3.8), ACT = 14 (from 12)



Education & Shared Decision Making









- The patient is an intelligent, degree educated woman who understands that asthma attacks can lead to hospitalisation, and most importantly for her, time off work
- She is concerned that the number of OCS courses have caused her to gain weight. The long term risk of OCS use was explained to her, and she understands that OCS are not the panacea for asthma
- Her personal goals are to remain out of hospital, ideally asymptomatic, loose weight, regain a degree of fitness and hopefully enjoy her new dream job in IT
- She is now a partner in her own healthcare, fully collaborative in care



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



Still not fully controlled, what next?

-  Potential triggers removed
-  Inhaler technique optimised
-  Pharmacotherapy optimised
-  Fully collaborates with care
-  Referral to specialist centre
-  Consideration for biologics



Biologic site of action

OMAlizumab

Inhibits the binding of IgE antibody to receptors

MEPOlizumab

Binds to IL-5 α receptors on eosinophils

RESlizumab

Binds to IL-5 α receptors on eosinophils

BENRAlizumab

Binds to IL-5 on eosinophils, basophils and some mast cells

DUPlumab

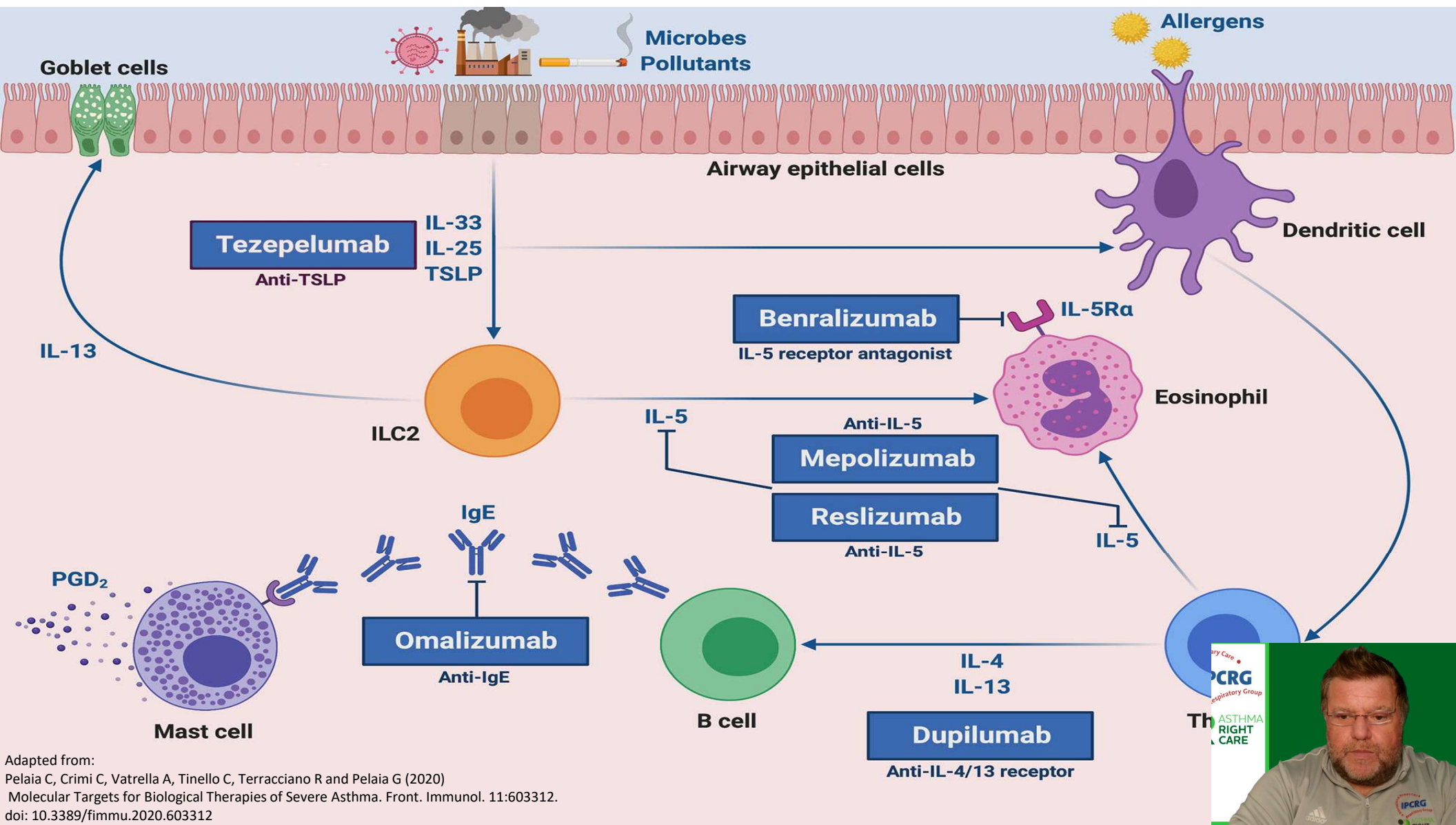
Binds to IL-4 and IL-13 cytokine-induced responses, including the release of proinflammatory cytokines, chemokines, and IgE

TEZEpelumab

Inhibits TSLP “Alarmin” that inhibits initiation of the T2 inflammatory cascade from both the innate (via ILC2) and acquired (via Th2) immune response, and also possibly also the neutrophilic non-T2 pathway (via IL-17)

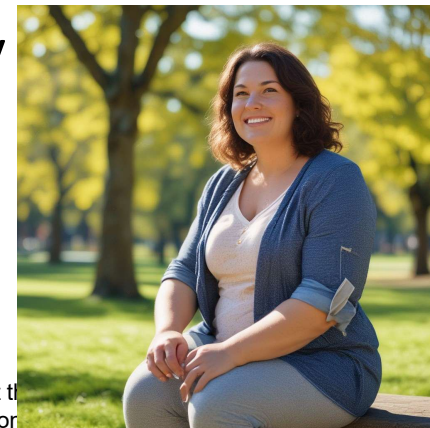
GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content





Review

- The patient's new workplace is environmentally controlled with HEPA filters in the A/C, this reduces pollen in the air. Her new accommodation is outside the city limits with excellent air quality
- Tertiary centre responded that she is a suitable candidate for biologic therapy and the patient was put on the pathway for treatment after a consultation with her and an explanation about biologic therapy
- 3 months after commencing biologic therapy
 - FeNO 23 ppb (on lower dose ICS)
 - Blood eosinophils 35 cells/ μ L
 - FEV₁ 2.28 (86%), FVC of 3.2 (99%), ratio 0.71



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content.

Summary

- Important to understand that with the best inhaler technique, maximal ICS dose and compliance, there will always be a cohort of patients that will not respond fully. These patients are ideal candidates for referral for consideration for biologic therapy.
- Referring a patient on to specialist care is **NOT** treatment failure. However, when considering severe asthma, it is important to have done everything we can in primary care **FIRST** before referral.
- Specialist referral has to be done in a timely manner; not too early when the basics haven't been performed, and not so late that there will be no benefit for the patient with fixed airways disease.



Too Early



Just Right



Too Late



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content



The desktop-helper



GSK provided an unrestricted educational grant to support the development of this case study but did not contribute to its content

