2022 Association of Asthma Educators Conference

Pharmacology Pre-Conference

Management of Severe Asthma Including Biologics and Bronchial Thermoplasty

Chattanooga, TN

August 4, 2022

10:45 a.m. – 11:30 a.m.

Management of Severe Asthma Including Biologics and Bronchial Thermoplasty

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Oklahoma Allergy and Asthma Clinic
Georgetown University School of Nursing and Health Studies

Pfizer – speaker

No conflict

Objective

1. Understand the role of systematic assessment in the management of severe asthma.
2. Discuss how to assess the selection and effectiveness of biologics.
3. Review recommendations of bronchial thermoplasty by the 2020 National Asthma Education and Prevention Program.

Severe Asthma

Severe Asthma

Challenging to assess and control, due to heterogeneity of disease, complexity of diagnosis, and impact of comorbidities[1]

Severe asthma affects approximately 5% - 10% of patients [1,2]

Responsible for a large component of the overall disease burden and results in about half of direct asthma-related costs[1]

Fleming l, Heaney L. Front. Pediatr 7:389.
Cote A, Godbout K, Boulet LP. Biochem Pharmacol 2020 Sep;179:114112.

Severe Asthma

"Severe asthma is defined as asthma that remains uncontrolled despite optimized treatment with high dose inhaled corticosteroid/long-acting beta agonist (ICS/LABA) to prevent asthma from becoming uncontrolled.

Severe asthma persistent problems with adherence or comorbidities such as chronic rhinosinusitis or obesity, as there are very different treatment implications compared with if asthma is relatively refractory to high dose (ICS/LABA or even oral corticosteroids."

Global Initiative for Asthma 2022
Global Initiative for Asthma 2019

Severe Asthma

- Cardinal feature is airflow obstruction leads to frequent symptoms requiring higher levels of controller therapy
- Severe asthma is associated with significant morbidity
- Challenging to assess and control due to heterogeneity of disease
- Complexity of diagnosis
- Impact of comorbidities

Schoettler N, Strek ME. Chest. 2020 Mar;157(3):516-528.

Accurate Asthma Diagnosis

Diagnostic confirmation of asthma can be challenging among individuals with severe asthma

Accurate Asthma Diagnosis

- Symptoms of intermittent dyspnea, wheezing, and cough are classically associated with asthma, but these are nonspecific and presentation with atypical asthma symptoms such as cough is common
- Asthma should be considered whether classical symptoms are present or not, and evaluation for other non-asthma diagnoses is warranted, even when patients present with classical symptoms
- Both under- and over-diagnosis are widespread and lead to significant risks to patients
- Diagnosis of asthma is based on clinical findings, objective measurements, such as reversible airflow obstruction, can be used to support a diagnosis

Schoettler N, Strek ME. Chest 2020; 157(3):516-528

GINA 2022:
Poor Symptom Control and/or Exacerbation Despite Treatment

Watch	Watch patient using their inhaler. Discuss adherence and barriers to use
Confirm	Confirm the diagnosis of asthma
Remove	If possible, remove potential risk factors. Assess and manage comorbidities
Consider	Consider treatment step-up
Refer	Refer to a specialist or severe asthma clinic

GINA 2022

Assessment of Asthma and Related Conditions

GP OR SPECIALIST CARE

Investigate and manage difficult-to-treat asthma in adults and adolescents

Consider referring to specialist or severe asthma clinic at any stage

DIAGNOSIS: ***"Difficult-to-treat asthma"***

For adolescents and adults with symptoms and/or exacerbations despite medium or high dose ICS-LABA, or taking maintenance OCS

1 Confirm the diagnosis (asthma/differential diagnoses)

2 Look for factors contributing to symptoms, exacerbations and poor quality of life:

- Incorrect inhaler technique
- Suboptimal adherence
- Comorbidities including obesity, GERD, chronic rhinosinusitis, OSA
- Modifiable risk factors and triggers at home or work, including smoking, environmental exposures, allergen exposure (if sensitized); medications such as beta-blockers and NSAIDs
- Overuse of SABA relievers
- Medication side effects
- Anxiety, depression and social difficulties

3 Optimize management, including:

- Asthma education
- Optimize treatment (e.g. check and correct inhaler technique and adherence; switch to ICS-formoterol maintenance and reliever therapy, if available)
- Consider non-pharmacological interventions (e.g. smoking cessation, exercise, weight loss, mucus clearance, influenza and COVID-19 vaccination)
- Treat comorbidities and modifiable risk factors
- Consider non-biologic add-on therapy (e.g. LABA, LAMA, LM/LTRA, if not used)
- Consider trial of high dose ICS-LABA, if not used

4 Review response after ~3-6 months

Is asthma still uncontrolled?

yes

DIAGNOSIS: ***"Severe asthma"***

If not done by now, refer to a specialist, if possible

no

Consider stepping down treatment, OCS first (if used)

Does asthma become uncontrolled when treatment is stepped down?

yes

Restore previous dose

no

Continue optimizing management

Key

decision, filters

intervention, treatment

diagnosis, confirmation

Assess and treat severe asthma phenotypes

Continue to optimize management as in section **3** (including inhaler technique, adherence, comorbidities, non-pharmacologic strategies)

5 *Investigate* further and provide *patient support*

- Investigate for comorbidities/differential diagnoses and treat/refer as appropriate
  - Consider: CBC, CRP, IgG, IgA, IgM, IgE, fungal precipitins; CXR and/or HRCT chest; DLCO; DEXA scan
  - Skin prick testing or specific IgE for relevant allergens, if not already done
  - Consider screening for adrenal insufficiency in patients taking maintenance OCS or high dose ICS
  - If blood eosinophils ≥300/µl, look for and treat non-asthma causes, including parasites (e.g. Strongyloides serology, or stool examination)
  - If hypereosinophilia e.g. ≥1500/µl, consider causes such as EGPA
  - Other directed testing (e.g. ANCA, CT sinuses, BNP, echocardiogram) based on clinical suspicion
- Consider need for social/psychological support
- Involve multidisciplinary team care (if available)
- Invite patient to enroll in registry (if available) or clinical trial (if appropriate)

6 Assess the *severe asthma phenotype*

Could patient have Type 2 airway inflammation?

yes

Type 2 inflammation

- Blood eosinophils ≥150/µl and/or
- FeNO ≥20 ppb and/or
- Sputum eosinophils ≥2%, and/or
- Asthma is clinically allergen-driven

(Repeat blood eosinophils and FeNO up to 3x, at least 1-2 weeks after OCS or on lowest possible OCS dose)

*Note: these are **not** the criteria for add-on biologic therapy (see **8**)*

no

No evidence of Type 2 airway inflammation

- Review the basics: differential diagnosis, inhaler technique, adherence, comorbidities, side-effects
- Avoid exposures (tobacco smoke, allergens, irritants)
- Consider investigations (if available and not done)
  - Sputum induction
  - High resolution chest CT
  - Bronchoscopy for alternative/additional diagnoses
- Consider trial of add-on treatments (if available and not already tried)
  - LAMA
  - Low dose azithromycin
  - Anti-IL4R* if taking maintenance OCS
  - Anti-TSLP* (but insufficient evidence in patients on maintenance OCS)
  - As last resort, consider add-on low dose OCS, but implement strategies to minimize side-effects
- Consider bronchial thermoplasty (+ registry)
- Stop ineffective add-on therapies

** Check local eligibility criteria for specific biologic therapies as these may vary from those listed*

7 Consider *other* treatments

Type 2 airway inflammation

- Consider adherence tests
- Consider increasing the ICS dose for 3-6 months
- Consider add-on non-biologic treatment for specific Type 2 clinical phenotypes, e.g. AERD, ABPA, chronic rhinosinusitis, nasal polyposis, atopic dermatitis

Is add-on Type 2 biologic therapy available/ affordable?

yes

Go to section **10**

no

If add-on Type 2-targeted biologic therapy is NOT available/affordable

- Consider higher dose ICS, if not used
- Consider other add-on therapy (e.g. LAMA, LM/LTRA, low dose azithromycin)
- As last resort, consider add-on low dose OCS, but implement strategies to minimize side-effects
- Stop ineffective add-on therapies

Not currently eligible for T2-targeted biologic therapy

Go to section **10**

Assess and treat severe asthma phenotypes *cont'd*

Continue to optimize management as in section **3** (including inhaler technique, adherence, comorbidities, non-pharmacologic strategies)

8 Consider *add-on biologic Type 2-targeted* treatments

- Consider add-on Type 2-targeted biologic therapy for patients with exacerbations or poor symptom control on high dose ICS-LABA, who have evidence of Type 2 inflammation*
- Consider **local payer eligibility criteria***, **comorbidities** and **predictors of response** when choosing between available therapies
- Also consider cost, dosing frequency, route (SC or IV), patient preference

Which biologic is appropriate to start first?

Eligibility | *Predictors of asthma response*

Anti-IgE *(omalizumab)*

*Is the patient eligible for **anti-IgE** for severe allergic 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 good asthma response to anti-IgE?

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

no / *no*

Anti-IL5 / Anti-IL5R *(benralizumab, mepolizumab, reslizumab)*

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

- Exacerbations in last year
- Blood eosinophils, e.g. ≥150/µl or ≥300/µl

What factors may predict good asthma response to anti-IL5/5R?

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

no / *no*

Anti-IL4R *(dupilumab)*

*Is the patient eligible for **anti-IL4R** for severe eosinophilic/Type 2 asthma?**

- Exacerbations in last year
- Blood eosinophils ≥150 and ≤1500/µl, or FeNO ≥25 ppb, or taking maintenance OCS

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

- Higher blood eosinophils +++
- Higher FeNO +++

no / *no*

Anti-TSLP *(tezepelumab)*

*Is the patient eligible for **anti-TSLP** for severe asthma?**

- Exacerbations in last year

What factors may predict good asthma response to anti-TSLP?

- Higher blood eosinophils +++
- Higher FeNO +++

Eligible for none? Return to section **7**

Choose one if eligible*; trial for at least 4 months and assess response

*Good asthma response?**

unclear → Extend trial to 6-12 months*

yes → Good response to T2-targeted therapy

no → **STOP add-on**

Consider switching to a different Type 2-targeted therapy, if eligible*

no → Little/no response to T2-targeted therapy

No evidence of Type 2 airway inflammation

No evidence of Type 2 airway inflammation. Go to section **10**

* *Check local eligibility criteria for specific biologic therapies as these may vary from those listed*

Monitor / Manage severe asthma treatment

Continue to optimize management

9 Review **response**

- Asthma: symptom control, exacerbations, lung function
- Type 2 comorbidities e.g. nasal polyposis, atopic dermatitis
- Medications: treatment intensity, side-effects, affordability
- Patient satisfaction

yes

If good response to Type 2-targeted therapy

- Re-evaluate the patient every 3-6 months*
- For **oral treatments:** consider decreasing/stopping OCS first (and check for adrenal insufficiency), then stopping other add-on medication
- For **inhaled treatments:** consider decreasing after 3-6 months; continue at least moderate dose ICS-LABA
- Re-evaluate need for ongoing biologic therapy
- Order of reduction of treatments based on observed benefit, potential side-effects, cost and patient preference

no

If no good response to Type 2-targeted therapy

- Stop the biologic therapy
- Review the basics: differential diagnosis, inhaler technique, adherence, comorbidities, side-effects, emotional support
- Consider high resolution chest CT (if not done)
- Reassess phenotype and treatment options
  - Induced sputum (if available)
  - Consider add-on low dose azithromycin
  - Consider bronchoscopy for alternative/additional diagnoses
  - As last resort, consider add-on low dose OCS, but implement strategies to minimize side-effects
  - Consider bronchial thermoplasty (+ registry)
- Stop ineffective add-on therapies
- Do not stop ICS

No evidence of Type 2 airway inflammation. Go to section **10**

10 Continue to **optimize management** as in section **3**, including:

- Inhaler technique
- Adherence
- Comorbidity management
- Non-pharmacologic strategies
- Patients' social/emotional needs
- Two-way communication with GP for ongoing care

Notes:

* *Check local eligibility criteria for specific biologic therapies as these may vary from those listed*

Accurate Asthma Diagnosis

- Obtain a thorough history
  - identifying common triggers
  - Work/school exposures
  - personal history of wheezing
  - symptoms with exercise
  - family history of asthma symptoms

Evaluation in patients > 5 years of age should include spirometry with evaluation for a bronchodilator response and in patients without airflow obstruction consideration of bronchoprovocation testing

Global Initiative for Asthma 2022

Accurate Asthma Diagnosis

Further testing:

- measurement of exhaled fractional excretion of nitric oxide
- CBC count with differential to evaluate for eosinophilia
- serum IgE levels
- allergy testing to environmental allergens

- In cases of persistent or severe asthma consider chest radiograph and/or chest CT scan

Comorbidities and Severe Asthma

- Allergic rhinitis/Chronic rhinosinusitis
- Vocal cord dysfunction (VCD)
- Sleep apnea
- COPD
- Bronchiectasis
- Obesity
- Psychiatric conditions/Anxiety/depression
- GERD
- Cardiovascular and metabolic disorder
- Allergic bronchopulmonary aspergillosis (ABPA)
- COPD

Comorbidities and Associated Conditions with Severe Asthma

Vocal cord dysfunction

Dysfunctional breathing

Rhinosinusitis

Nasal polyps

Obstructive sleep apnea

Gastroesophageal disease

Anxiety/Depression

Obesity/overweight

Corticosteroid side effects:

osteoporosis, obesity, diabetes

Chronic obstructive pulmonary disease

Bronchopulmonary aspergillosis

Bronchiectasis

Eosinophilic conditions

- eosinophilic granulomatosis
- bronchopulmonary aspergillosia
- hyper-eosinophilic syndrome

Severe asthma is a heterogeneous disease encompassing different phenotypes and endotypes

Heialy SA, Ramakrishnan R, Hamid Q. J Allergy Clin Immunol 2022;149:455-65

Severe Asthma: What is Phenotyping?

Accurately and easily characterize an individual's severe asthma and assign a "phenotype" for the application of personalized therapeutic approaches → precision medicine

Refine phenotyping to measure or make inferences about basic pathophysiologic and biologic mechanisms → endotypes that underlie the disease and ultimately guide therapy

GOAL:
Derive clinical phenotypes that clearly translate to biological endotypes for the purpose of efficient and therapeutic precision pharmacological treatment

Carr T, Zeki A, Kraft M. AJRCCM Jan 2018
Kuruvilla ME, Lee FE, Lee GB. Clin Rev Allergy Immunol. 2019 Apr;56(2):219-233.

Phenotypes

Observable characteristics that result from a combination of hereditary and environmental influences

- Allergic asthma
- Non-allergic asthma
- Adult-onset asthma
- Aspirin-exacerbated respiratory disease
- Asthma predictive index-positive (preschool wheezer)
- Exercise-induced asthma
- Asthma with obesity
- Persistent airflow limitation

Global Initiative for Asthma. 2022. www.ginasthma.org

Phenotypes

- Phenotyping can be incorporated into clinical practice and can be used to guide advanced biological therapies that target specific molecules and inflammatory pathways that contribute to asthma pathogenesis

- Phenotypes of asthma have been identified according to causal or triggering factors, such as allergen-induced or aspirin-induced, to the type of airflow obstruction, to the severity and response to treatments, to radiological findings, and to the nature of airway inflammation

Carr TF, Zeki AA, Kraft M. Am J Respir Crit Care Med 2018 ;197, 1, 22–37,
Fajt M. Wenzel SE. J Allergy Clin Immunol 2015;135:299-310.
Global Initiative for Asthma. 2022. www.ginasthma.org
Kuruvilla ME, Lee FEH, Lee GB Clin Rev Allergy Immunol. 2019 Apr; 56(2): 219–233.

Endotype

Asthma endotypes describe these distinct pathophysiologic mechanisms at a cellular and molecular level

Specific biological mechanism that causes those observed properties of any given phenotype

Carr TF, Zeki AA, Kraft M. Am J Respir Crit Care Med 2018 ;197, 1, 22–37,
Fajt M. Wenzel SE. J Allergy Clin Immunol 2015;135:299-310.
Global Initiative for Asthma. 2022. www.ginasthma.org
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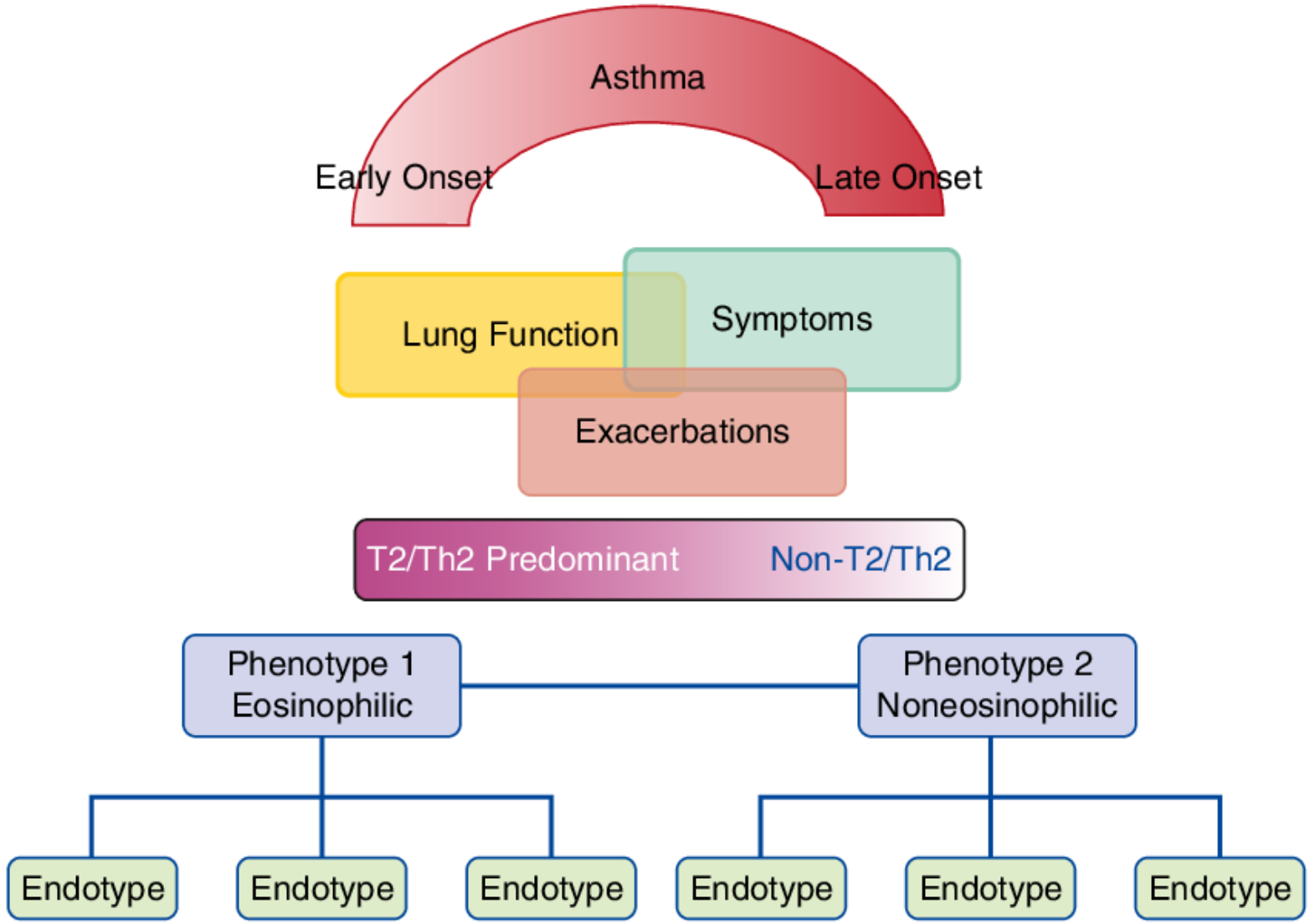


gure 1. Schematic representation of asthma and the spectrum of inflammation type and endotyp

Carr T, Zeki A, Kraft M. AJRCCM Jan 2018

Clinical Phenotypes of Severe Asthma

- Severe asthma is a complex chronic disease which is reinforced by several phenotypes and impacted by various co-morbidities and risk factors*
- various clinical phenotypes with diverse molecular mechanisms that may be driving these different phenotypes
- Optimizing individualized treatment for severe asthma will require determining the asthma sub-phenotypes and endotypes, and the underlying molecular mechanisms responsible for those traits

Schoettler N, Strek ME. Chest 2020; 157(3):516-528
Carr T, Kraft M. J Allergy Clin Immunol Pract 2017;5:877-86

Severe Asthma Endotypes

Severe asthma endotypes are broadly classified into:

TH2-high (eosinophilic)

TH2-low (noneosinophilic)

Based on the mechanisms driving the different inflammatory profiles

Common Features of T2-High and T-2 Low Asthma

Feature	T2-High	T-2 Low
Age of onset Earlier onset Later onset	Age of onset Earlier onset Later onset	Age of onset Earlier onset Later onset
Symptoms	May be significant	May be significant
Life-threatening exacerbations	More exacerbations	Fewer exacerbations
Obesity/metabolic dysfunction	May be present	Often present
Lung function	More obstruction	Less obstruction
Short-acting bronchodilator response	More responsive	Less responsive
Allergic sensitization	Present	Absent
FeNO	Normal to elevated	Low to normal
Airway eosinophilia	Present	Absent
Airway Neutrophilia	May be present	May be present
Medication requirements	More responsive to corticosteroids	Less responsive to corticosteroids

Viswanathan RK, Busse W.W. Ann Allergy Asthma Immunol 2020,125,37e149

Asthma Pathogenesis

Characterized by two major endotypes

- T2-high
  → increased eosinophilic airway inflammation
- T2-low
  →endotype presenting with either neutrophilic or paucigranulocytic airway inflammation
  →greater resistance to steroids

Strategies for Management of Severe Asthma

Oral Corticosteroids

- Corticosteroids elicit potent anti-inflammatory responses from several different cell types that can dramatically alter asthma symptoms
- Most patients respond to systemic corticosteroid therapy at high doses
- Short-term and long-term adverse effects of corticosteroid therapy often complicate their chronic use in severe asthma

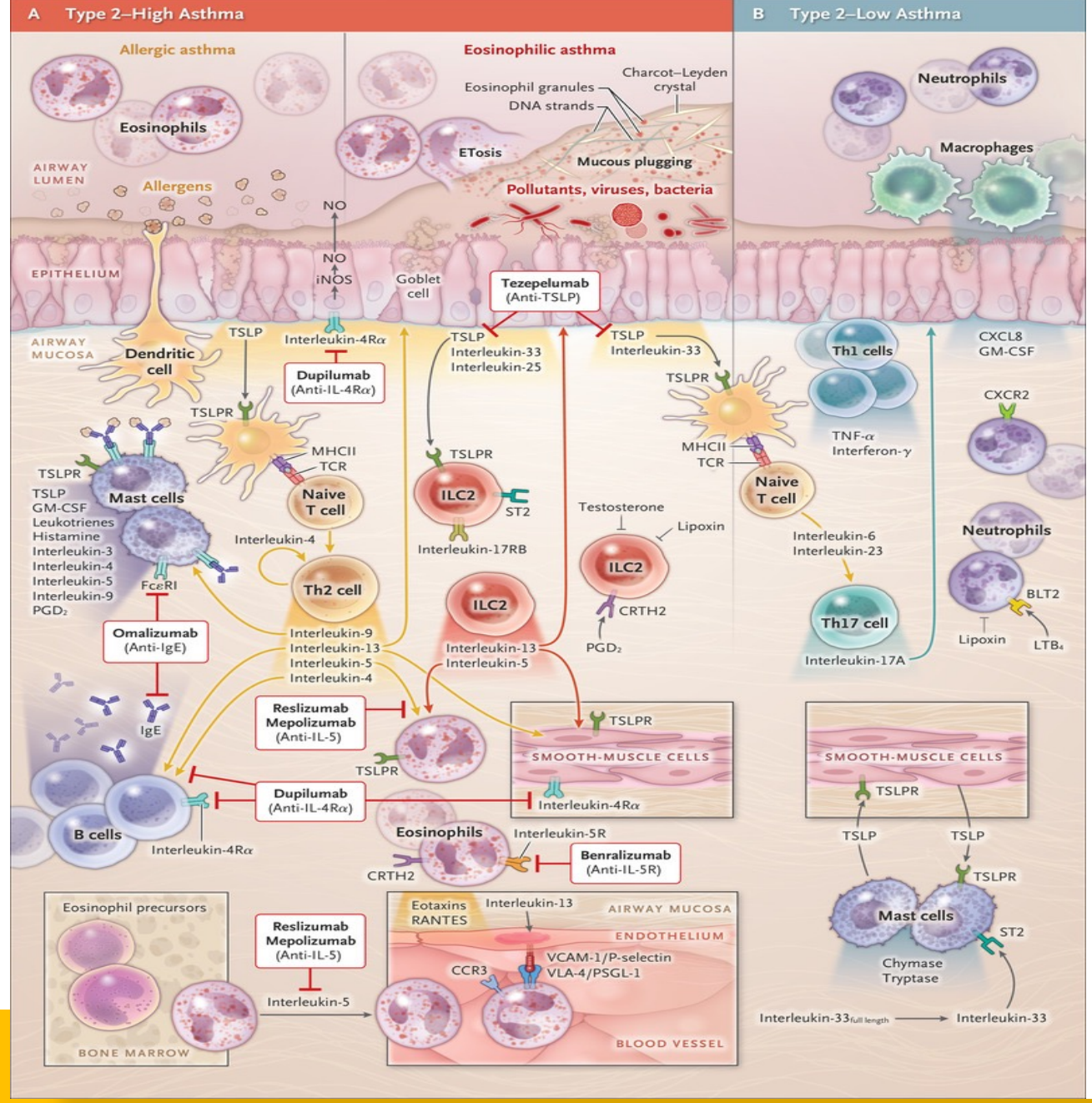
Biologic Therapies

- Used for patients who continue to have symptoms despite use of standard daily controller medications
- Biologic therapies target type 2 inflammatory pathways that are central to exacerbation pathogenesis in asthma
- All biologic therapies have been shown to reduce exacerbation frequency in controlled trials
- Elevated blood eosinophil counts ± FeNO are associated with greater clinical efficacy with all the asthma biologics

McGregor MC, Krings JG, Nair P, Castro M. AJRCCM 2019 199;4

Immunomodulatory Biologic Agents Approved for Use in Asthma

- Xolair (omalizumab)
- Nucala (mepolizumab)
- Cinqair (reslizumab)
- Fasenra (benralizumab)
- Dupixent (dupilumab)
- Tezspire (tezepelumab-ekko)



Brusselle GG, Koppelman GH. N Engl J Med 2022; 386:157-171

Selection and Effectiveness: How do we decide?

*Before addition of a biologic, clinic evaluation must include:

- Properly classify asthma severity
- Identifying causes of poor asthma control
- Addressing poor adherence

Biologic Therapy: Selection and Effectiveness

How do we decide which biologic therapy is best for our patient severe asthma?

Biologic Therapy: Selection and Effectiveness

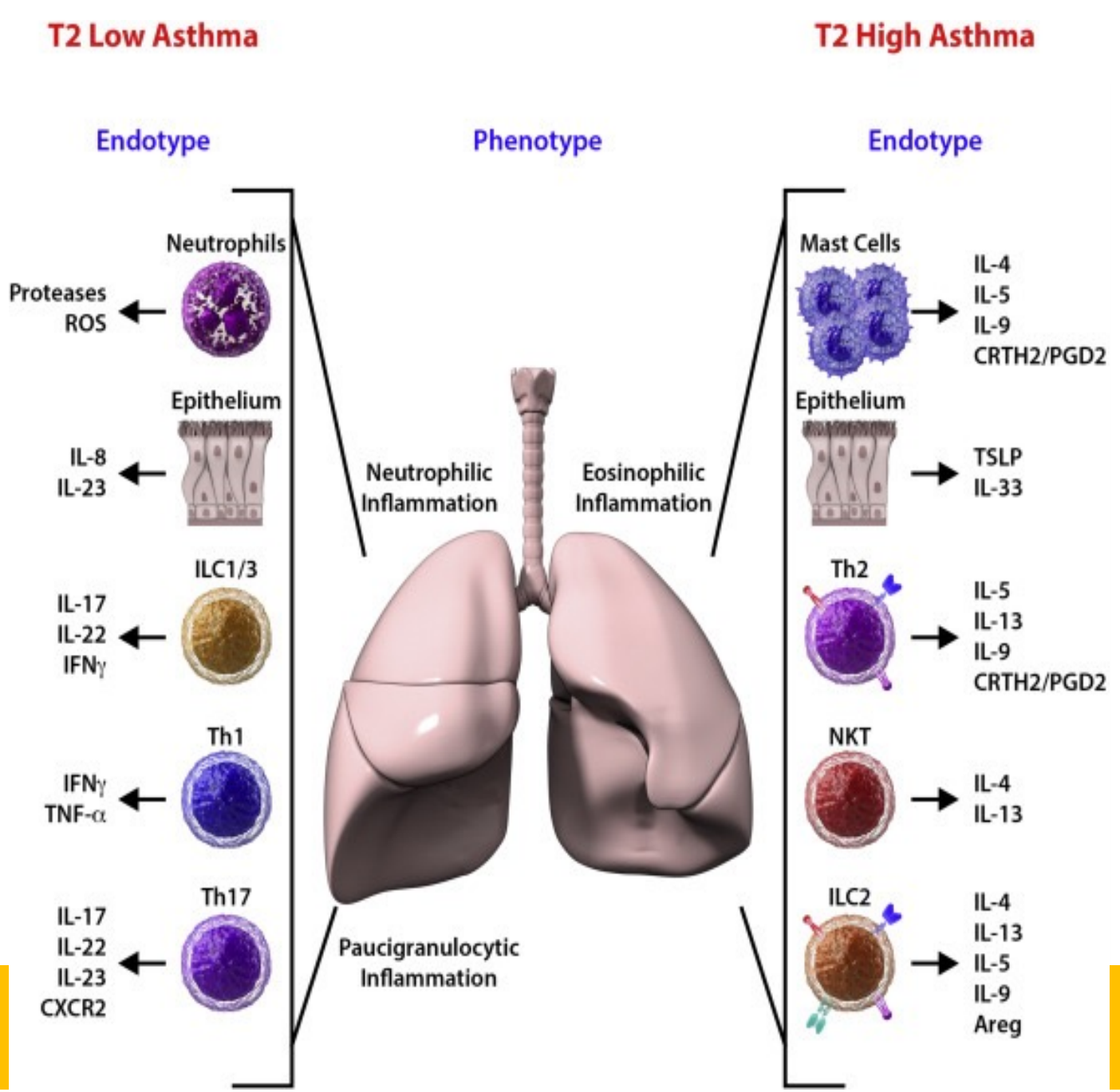
- Head-to-head comparative studies of the biologics are not currently available to guide the selection of biologics for individual patients
- Choosing between the various IL-5 antagonists is difficult, as their effects on various clinical end points have proven to be similar
- Biologic therapeutics are expensive and sometimes can be challenging for insurance coverage

The emergence of biologics has revolutionized the treatment of patients with severe asthma

Viswanathan RK, Busse W.W. Ann Allergy Asthma Immunol 2020,125,37e149. Kavanagh JE,Hearn AP, Jackson DJ.*Breathe* 2021; 17: 210144.

Think with the end in mind:

Primary outcome improved by T2 biologics is the prevention of asthma exacerbations



Viswanathan RK, Busse W.W. Ann Allergy Asthma Immunol 2020,125,37e149

T-2 High or T-2 Low Airway Inflammation?

- T2-high asthma encompasses both allergic and nonallergic eosinophilic asthma.
- Sputum and blood absolute eosinophil counts (AECs), serum IgE, FeNO, and serum periostin are all important biomarkers of T2 inflammation that can help predict response to biologics

- Currently, there is no approved biologic for T2-low asthma

Heialy SA, Ramakrishnan RK, Hamid Q. J Allergy Clin Immunol 2022;149:455-65.
Viswanathan RK, Busse W.W. Ann Allergy Asthma Immunol 2020,125,37e149

Biologic Therapy

Class	Name	Age	Asthma indication	Other indications
Anti-IgE	Omalizumab (SC)	≥6 years	Severe allergic asthma	Nasal polyposis, chronic spontaneous urticaria
Anti-IL5 Anti-IL5R	Mepolizumab (SC) Reslizumab (IV) Benralizumab (SC)	≥6 years ≥18 years ≥12 years	Severe eosinophilic/Type 2 asthma	Mepolizumab: EGPA, CRSwNP, hypereosinophilic syndrome
Anti-IL4R	Dupilumab (SC)	≥6 years	Severe eosinophilic/Type 2 asthma, or maintenance OCS	Moderate-severe atopic dermatitis, CRSwNP
Anti-TSLP	Tezepelumab (SC)	≥12 years	Severe asthma	

Global Initiative for Asthma. Ginasthma.org

Biologic Therapy:

- Phenotyping for T2 inflammation with basic biomarkers determinations should be made
  - measures of peripheral blood eosinophil (EOS) values (!150 cells/mL)
  - FeNO (20 ppb)
  - IgE levels
  - Allergen-specific sensitization by either skin test or serologic testing
  - Exceptional documentation

Take Home Message

- Recognize eosinophilic airway inflammation is a treatable trait and has allowed for the emergence of biologic therapy

- Clinical indicators:

  are easily measured

  provide shared decision making with our patients

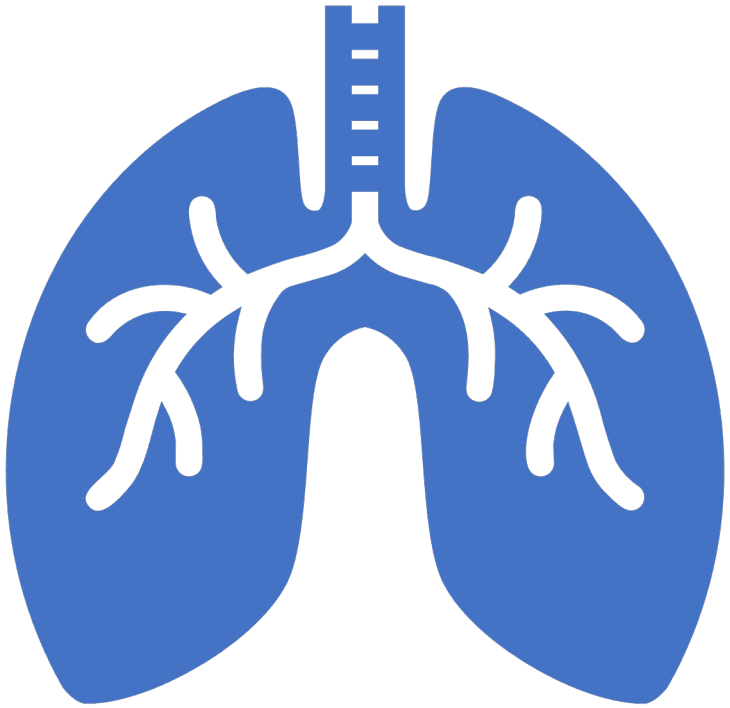
  helps us decide if the biologic should
  be continued or if a switch to alternate treatment

Viswanathan RK, Busse W.W. Ann Allergy Asthma Immunol 2020,125,37e149

Evaluate Factors Contributing to Poor Asthma Control

- Incorrect inhaler technique
- Suboptimal adherence
- Comorbidities: GERD, obesity, chronic rhinosinusitis, OSA
- Modifiable risk factors and triggers
  - Smoking, environmental exposures, allergen exposures, medications beta-blocker or NSAIDs
- Overuse of SABA relievers
- Medication side effects
- Anxiety, depression and social difficulties

Global Initiative for Asthma. Ginasthma.org



Bronchial Thermoplasty (BT)

Bronchothermoplasty

Device-based treatment for patients ≥ 18 years of age

with severe asthma poorly controlled

with inhaled corticosteroids

and long-acting beta-agonists

What clinicians should discuss with their patients about BT

- BT may reduce severe asthma exacerbations compared with standard care after treatment
- Benefits could last 5 years or more, only limited data demonstrate that this treatment improves long-term asthma outcomes
- Risks:
  - worsening of asthma
  - respiratory infections
  - Hemoptysis
  - bronchiectasis
  - pulmonary artery complications
  - severe, delayed-onset complications could occur that have not yet been recognized because of the small numbers of individuals who have undergone the procedure

2020 FOCUSED UPDATES TO THE Asthma Management Guidelines

Bronchial Thermoplasty (BT)

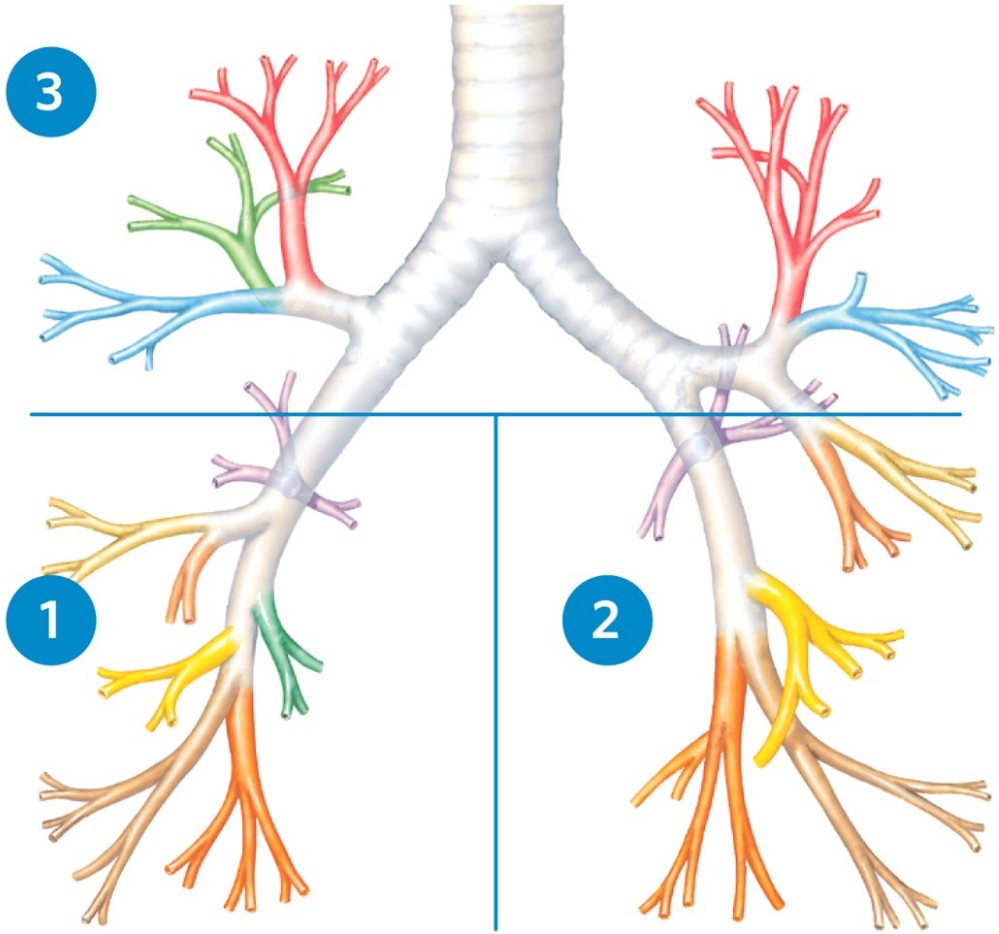
- Bronchial Thermoplasty (BT) is a minimally invasive and safe outpatient procedure for the treatment of severe asthma in adults
- BT is for patients with severe asthma ≥ 18 years old who are on inhaled corticosteroids and long-acting beta$_2$ agonists but still experience asthma symptoms and/or risk of future exacerbations
- BT is a clinically proven non-drug therapy for patients with severe asthma, with benefits demonstrated out to 5 years

2020 FOCUSED UPDATES TO THE Asthma Management Guidelines
Bostonscientific.com

Identifying BT Candidates

- Asthma exacerbations requiring oral corticosteroids
- ER, urgent care, or unscheduled office visits in the past 12 months
- Use of rescue inhaler > 2x per week
- Physical or activity limitations due to asthma

BT IS DONE IN 3 SESSIONS



Boston Scientific

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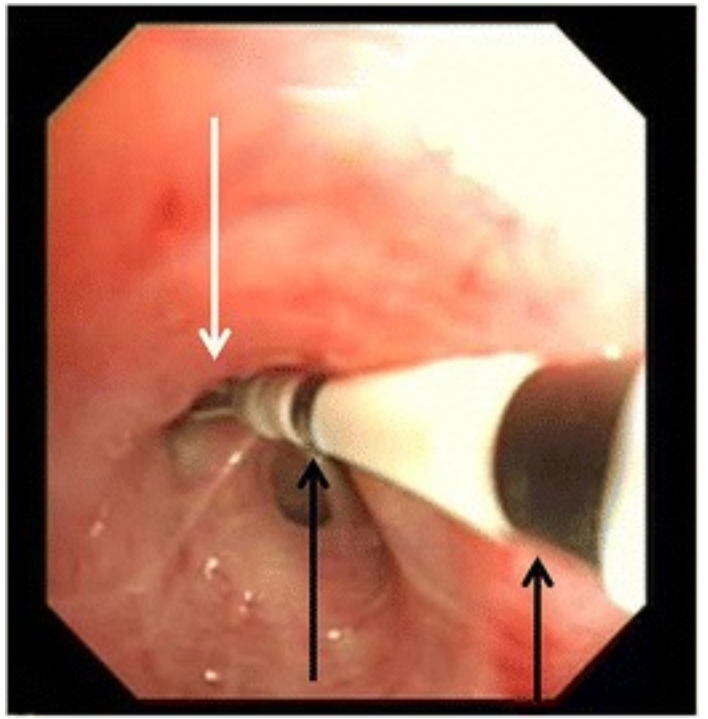
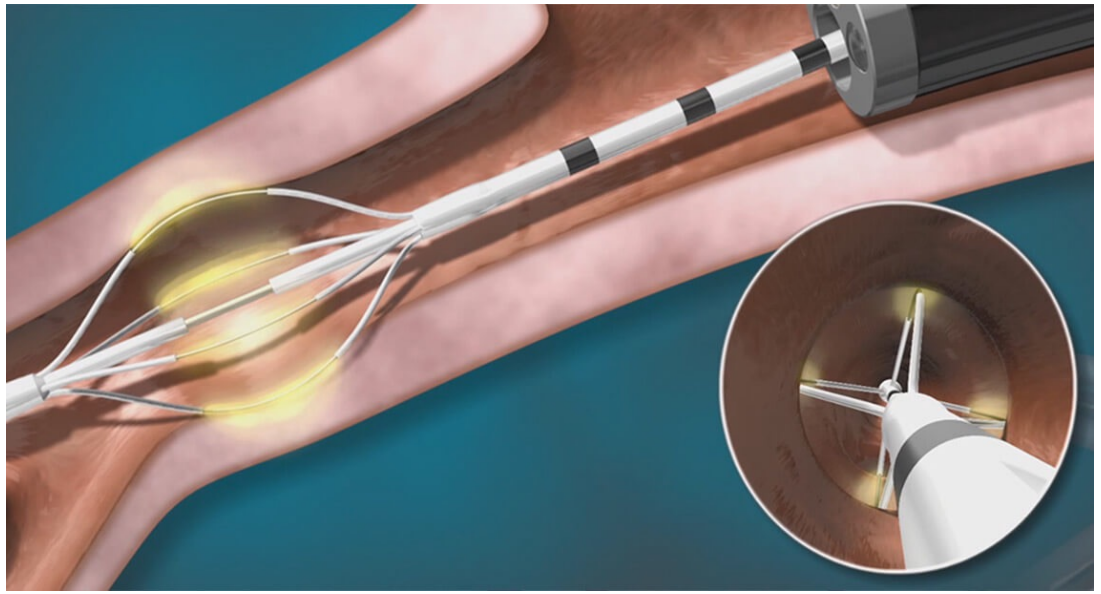


Researchgate.net



VITAL Innovation

2020 Focused Updates to the Asthma Management Guidelines

- Expert Panel conditionally recommends against BT in individuals aged 18 years and older with persistent asthma because of the small benefit to risk ratio and uncertain outcomes

- BT should not be used in individuals with low lung function (FEV1 that is <50% or 60% predicted) and life-threatening asthma

National Asthma Education and Prevention Program Coordinating Committee (NAEPPCC), et al. 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. J Allergy Clin Immunol. 2020 Dec;146(6):1217-1270.

2020 Focused Updates to the Asthma Management Guidelines

- For individuals who decide to undergo BT, an experienced specialist (eg, pulmonologist with training in BT administration) should provide this treatment in a center that has appropriate expertise

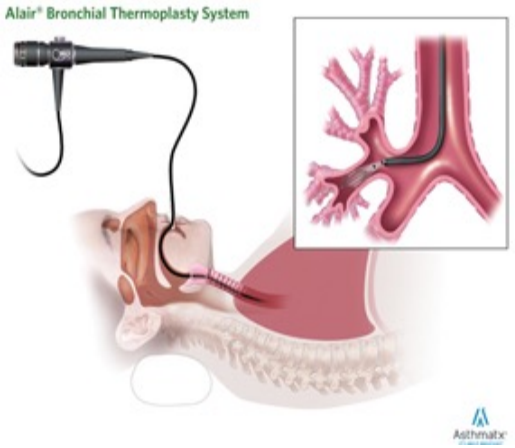
- Clinicians should optimize asthma treatment and address comorbidities, and they should assess and optimize adherence to existing therapy, before considering BT

National Asthma Education and Prevention Program Coordinating Committee (NAEPPCC), et al. 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. J Allergy Clin Immunol. 2020 Dec;146(6):1217-1270.

Bronchial Thermoplasty (BT)

- Recommendation 19:
  - In individuals ages 18 years and older with persistent asthma, the Expert Panel conditionally recommends against bronchial thermoplasty.

    Conditional recommendation, low certainty of evidence



Uab.edu

- Individuals ages 18 years and older with persistent asthma

  who place a low value on harms (i.e., short-term worsening of symptoms and unknown long-term side effects) and a high value on potential benefits (i.e., improvement in quality of life and a small reduction in number of exacerbations) might consider BT

Take Home Message

Systematic assessment of severe asthma

- Confirmation of asthma diagnosis:
  → Lung function → Bronchial provocation test
- Exclude other conditions masquerading as asthma
- Assess severity of disease:
  Poor symptom control, airflow obstruction, frequent exacerbations, life-threatening severe exacerbations
- Optimization of treatment according to national guidelines
- Assess adherence to therapy
- Adaptation and using individualized self-management plans
- Identification and avoidance of trigger factors
- Assessment and management of comorbidities
- Phenotyping according to clinic-physiologic inflammatory parameters

Global Initiative for Asthma. 2019 www.ginasthma.org

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