

New Trends in Management of Asthma

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Why new trends in for Asthma management ?

- Rise in Asthma Prevalence
- Increase acute exacerbations
- Increase morbidity
- Increase ED visits
- Increase hospitalizations
- Consumed more health care resources

Why do we need a new approach !

- Substantial advances in scientific knowledge about
 - Nature of asthma
 - Wide range of new medications
 - Understanding of important emotional, behavioural, social aspects of asthma care
- In spite of these efforts
 - Evidence of suboptimal asthma control
 - Poor adherence to existing guidelines

Why do we need a new approach !



Outline

New trends

- New GINA guideline
- Asthma Management
- Asthma Control
- Future treatment for asthma

New GINA guideline - 2015

The changes include

- Revised asthma **definition**
- Tools for **assessing** symptom control and risk factors for adverse outcomes
- Expanded indications for **inhaled corticosteroid** therapy
- **Targeted treatment** based on phenotype, modifiable risk factors & patient preference
- **Optimisation** of medication effectiveness by addressing inhaler technique and adherence

New GINA guideline - Updated

- A new definition of asthma –
“Asthma is a **heterogeneous disease**, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation.
- *importance of individualising patient management not only by using **genomics** or **proteomics**, but also with “**humanomics**”*

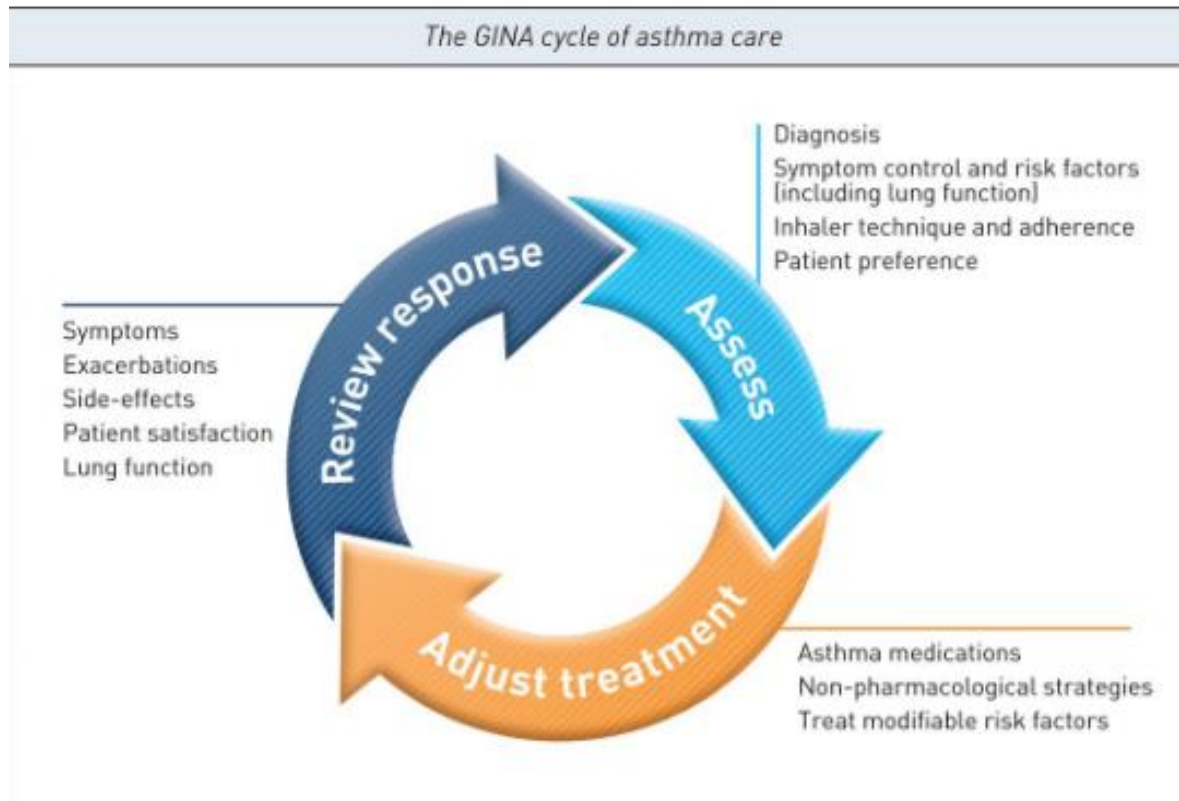
Clinical approach to a patient suspected of Asthma

- Arriving at a **clinical diagnosis**
- Excluding other possible **differential diagnosis**
- Assessing aggravating and relieving **factors**
- Assessing **severity**
- Assessing for accompanying asthma related **co-morbidities**

Goals for successful management of Asthma

- Achieve and maintain control of asthma symptoms
- Maintain normal activity levels, including exercise
- Maintain pulmonary function as close to normal as possible
- Prevent asthma exacerbations
- Avoid adverse effects from asthma medications
- Prevent asthma mortality

Key Priorities in Management of Asthma



Good communication is essential – establish a partnership with the patient

- Consider health literacy, personal goals and fears, and cultural issues

Treatment choices

- *Population-level decisions:* efficacy, effectiveness, safety, cost, regulations
- *Patient-level decisions for tailoring treatment:* also discuss patient characteristics (phenotype) that predict response or risk; patient preference; practical issues inhaler technique, adherence, and cost; treat modifiable risk factors; use non-pharmacological strategies where appropriate

Stepwise medication adjustment

- *Consider stepping up* if uncontrolled symptoms, exacerbations or risks, but check diagnosis,

Management of Asthma

Basic principles

- Stepwise management of Asthma
- Divided into 3 groups based on age (0-4 y, 5-11 y, 12 y and older)
- Patients should be assessed every 1-6 months for asthma control
- At every visit, adherence, environmental control, and comorbid conditions should be checked

Management of Asthma- Severity

- Severity depends on the frequency of asthma symptoms.
- *Intermittent Asthma* –
 - Day time symptoms are < 2 per week
 - Night time symptoms are < 2 per month
 - No limitation of daily activity
 - No severe asthma attacks needing hospitalization or ICU care
 - Rescue medication use < 2 per week

If “yes ” to all of the above classified as Intermittent Asthma

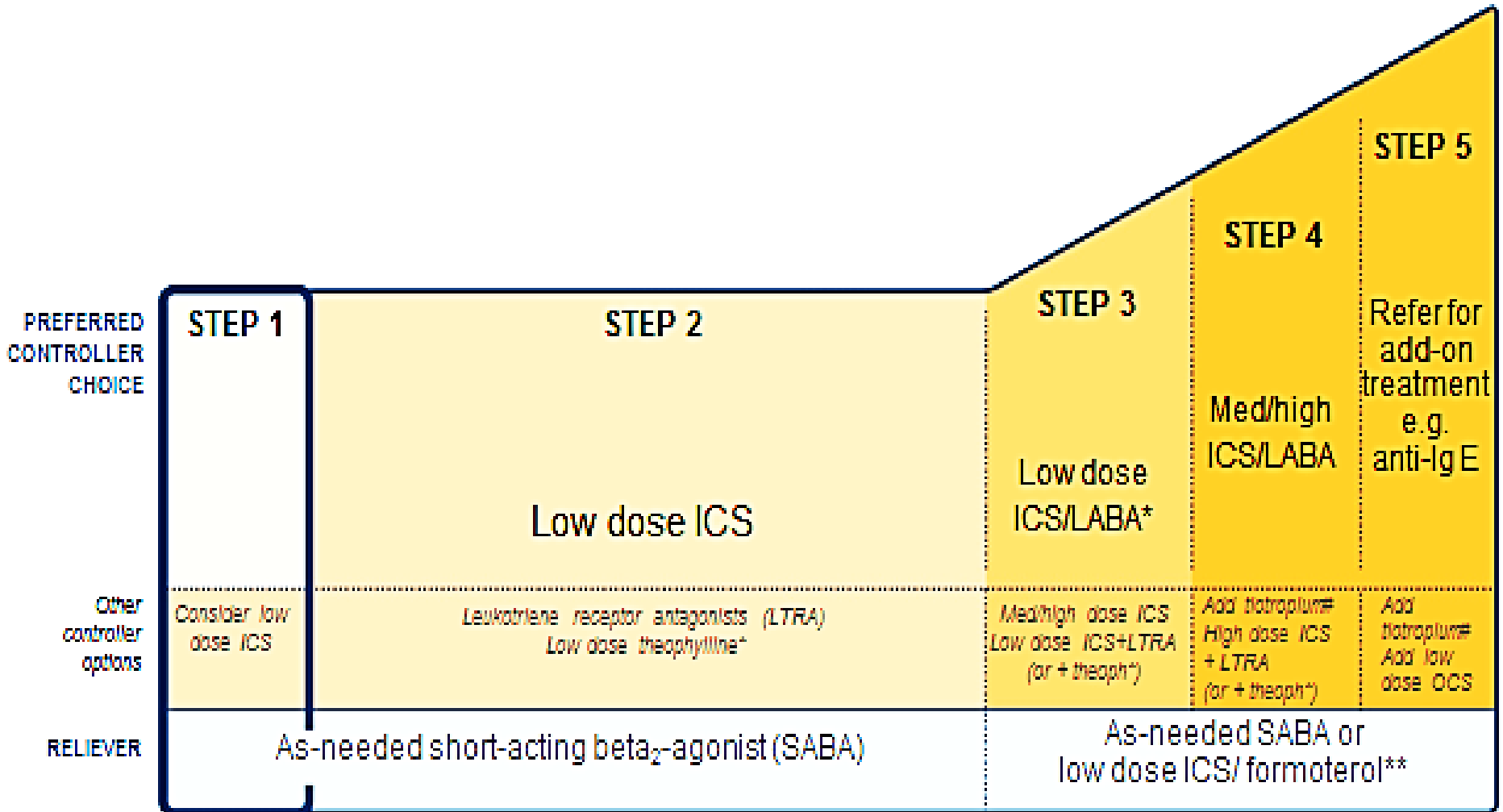
Management of Asthma- Severity

Persistent Asthma

	Day time symptoms	Night time symptoms	*Use of rescue medication
Mild Persistent	> 2 times/wk, may affect daily activity	> 2 times / month but < 1 time /week	> 2 times per week but not daily
Moderate Persistent	Daily symptoms, activity affected	> 1 time per week	Daily use of rescue medication
Severe Persistent	Continuous symptoms	Frequent	Frequent

*Rescue Medication = SABA (Short acting bronchodilators), LABA Long acting bronchodilators with rapid action also- formoterol , theophylline preparations

Stepwise Management of Asthma



LTRA and ICS



The **NEW ENGLAND**
JOURNAL of MEDICINE

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CME >

ORIGINAL ARTICLE

Leukotriene Antagonists as First-Line or Add-on Asthma-Controller Therapy

David Price, F.R.C.G.P., Stanley D. Musgrave, M.D., Lee Shepstone, Ph.D., Elizabeth V. Hillyer, D.V.M., Erika J. Sims, Ph.D., Richard F.T. Gilbert, M.R.C.G.P., Elizabeth F. Juniper, M.C.S.P., M.Sc., Jon G. Ayres, M.D., Linda Kemp, B.Sc., Annie Blyth, M.A., Edward C.F. Wilson, M.Sc., Stephanie Wolfe, M.Sc., R.G.N., Daryl Freeman, M.R.C.G.P., H. Miranda Mugford, Ph.D., Jamie Murdoch, Ph.D., and Ian Harvey, F.R.C.P.

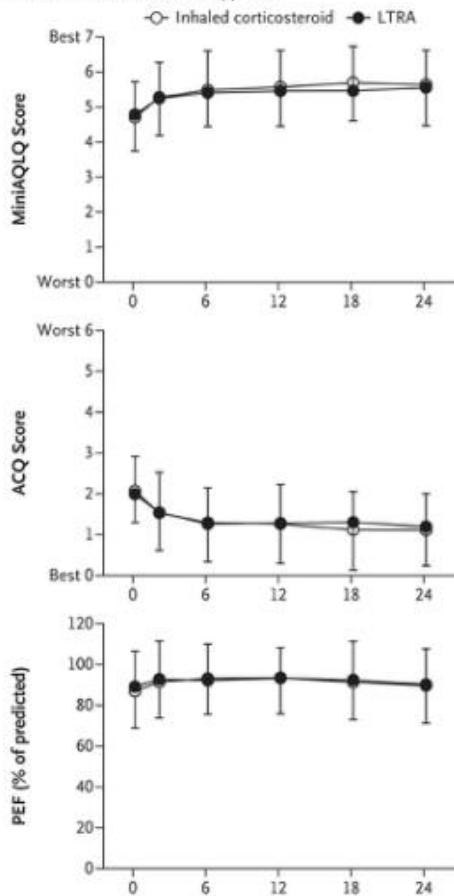
N Engl J Med 2011; 364:1695-1707 | May 5, 2011 | DOI: 10.1056/NEJMoa1010846

Two parallel, multicenter

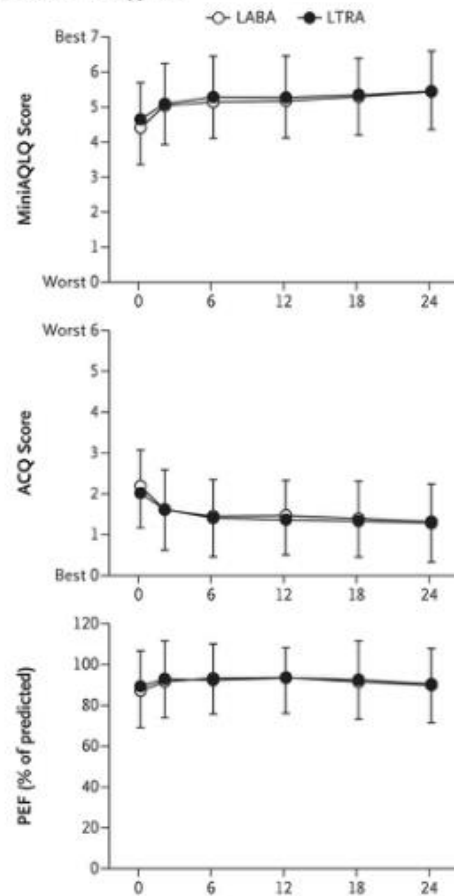
	First-Line Controller Therapy Trial		Add-on Therapy Trial	
	LTRA (N=148)	Inhaled Glucocorticoid (N=158)	LTRA (N=170)	LABA (N=182)
Mean age — yr	47.6±16.5	44.1±16.4	51.0±16.0	49.7±16.1

LTRA and ICS

A First-Line Controller Therapy Trial



B Add-on Therapy Trial



Results - LTRA is equivalent to both comparison drugs with regard to asthma-related quality of life at 2 months, but equivalence was not proven at 2 years

ICS are superior to anti-leukotrienes when used as monotherapy in adults and children with persistent asthma- Cochrane review

Higher level care and/or add-on treatment



Referral for specialist investigation and consideration of add-on treatment

- If symptoms uncontrolled or exacerbations persist despite Step 4
- Add-on omalizumab (anti-IgE) for uncontrolled on Step 4 treatment
- Options at Step 5
 - Tiotropium: for adults (≥ 18 years) with a history of exacerbations despite Step 4 treatment
 - Sputum-guided treatment
 - Add-on low dose oral corticosteroids (≤ 7.5 mg/day prednisone equivalent): need close assessment and monitoring for osteoporosis

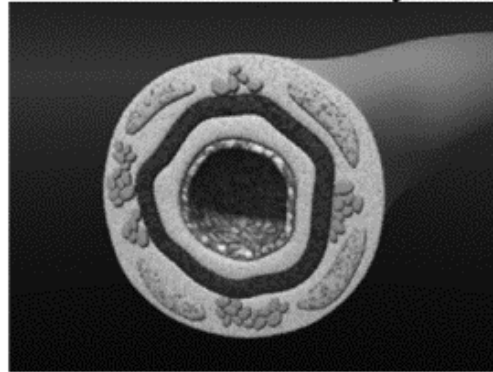
Anti-IgE Therapy

- Elevated serum IgE
- Biologic antibody therapy (Omalizumab; Xolair) binds IgE in the circulation and prevents it from activating mast cells and basophils
- In moderate to severe asthma, anti-IgE therapy reduced exacerbation rate and reduced steroid dose needed
- Anti IgE therapy is recommended as an add-on to optimized standard therapy in ≥ 12 years ,who need continuous or frequent treatment with oral corticosteroids

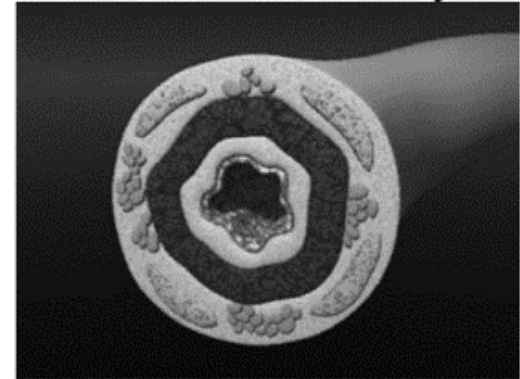
Ann Intern Med. 2011 3;154(9):573-82
Lancet Respir Med. 2013;1(3):189-90.
Cochrane Database Syst Rev. 2014 13;1

Bronchial Thermoplasty

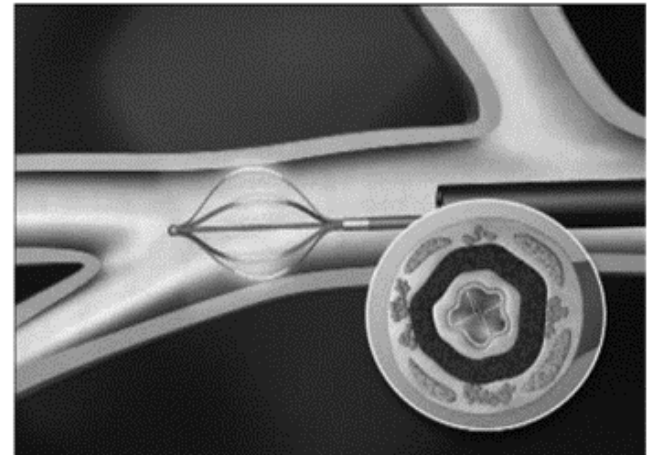
Normal airway



Asthmatic Airway



Principle:
Reduce airway smooth
muscle mass through
controlled thermal
treatment to airways



Asthma Control

Good asthma control is defined as

- Minimal symptoms during day time and no symptoms at night time
- Minimal need for reliever or rescue medication(<2/wk)
- No exacerbations
- No limitation of physical activity
- Normal lung function (FEV1 and Peak Expiratory Flow > 80% of predicted or personal best)

INSPIRE study

- International Asthma Patient Insight Research (INSPIRE) study is the first multinational study to focus on patients with a physician-confirmed diagnosis of asthma who were receiving regular maintenance therapy with ICS, with or without a LABA. (2004-05)
- Aim - Assess patients' **attitudes** to asthma management
 - Levels of asthma **control**
 - **Impact** of the condition on patients' lives
 - Establish the frequency and **severity** of worsening & how patients respond to such events

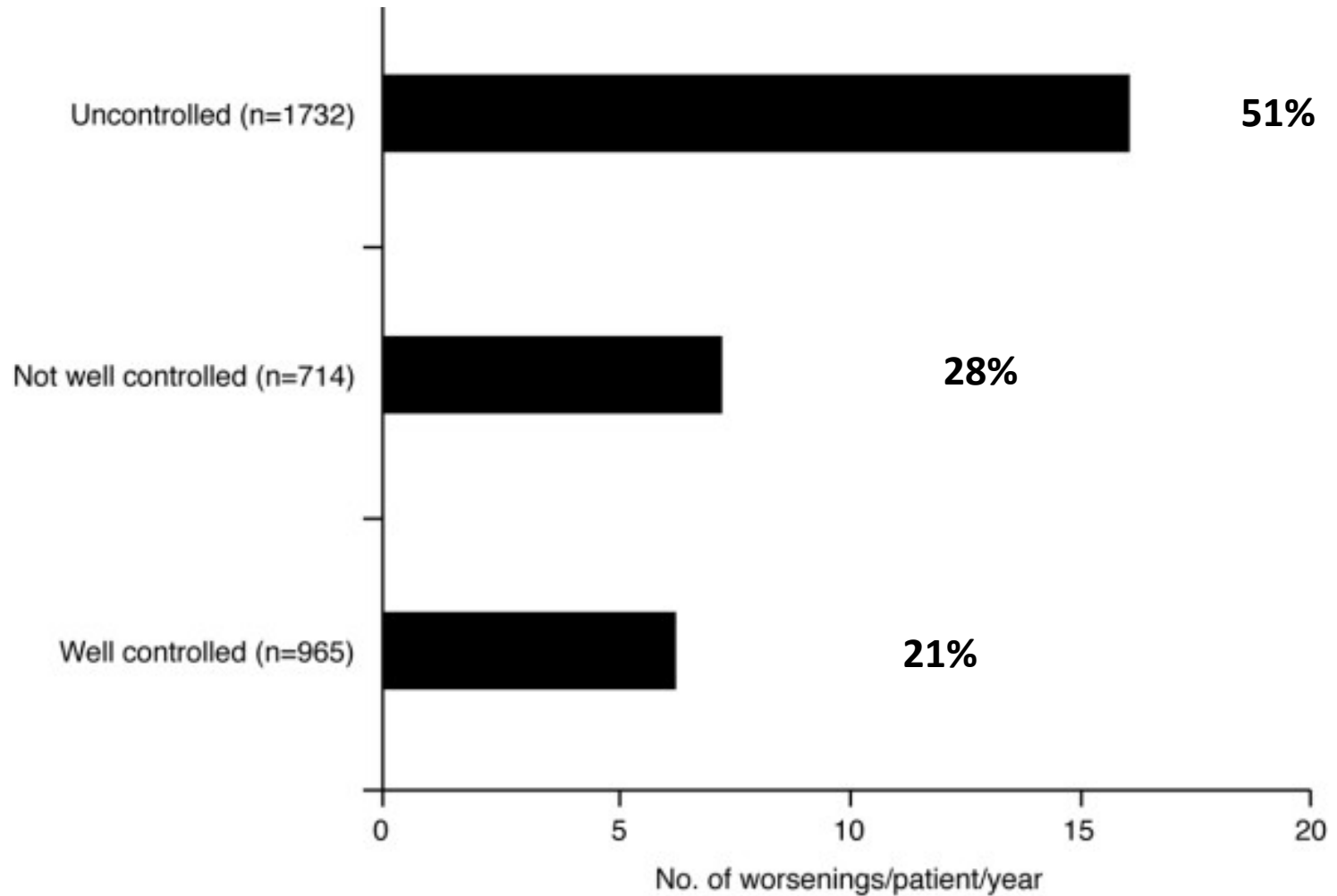
INSPIRE study

- Oct 2004 and Aug 2005 in eleven countries
- 3415 : adults aged ≥ 16 years with asthma were prescribed regular maintenance therapy with inhaled corticosteroids or inhaled corticosteroids plus long-acting β_2 -agonists.
- Assess medication use, asthma control (ACQ), and patients' ability to recognise and self-manage worsening asthma

INSPIRE study

- 74% of patients using at least one **rescue therapy** every day during the 7 days before the interview took place
- 51% having needed **unplanned** medical care (such as hospitalisation) as a result of an asthma attack on at least one occasion in the last year.
- 3.1 % asthma-related unscheduled medical **interventions** in the year

INSPIRE study - ACQ



mean number of worsenings for the total population was 11.8/year

Factors that Influence Asthma Control

Reasons of poor control	Variables	Examples
Disease-related	Comorbidities	Rhinitis, rhinosinusitis, gastrooesophageal reflux, obstructive sleep apnoea, and obesity
	Triggers	House dust mite, pollen, pet dander, tobacco, passive smoking, new allergens, and aspirin, and beta-blockers
	Asthma type	Aspirin-sensitivity related asthma
Patient related	Sociodemographic factors	Female sex, education below secondary level, adolescence, and elderly age
	Adherence	Undertreatment, overtreatment, irregular visits to healthcare providers, insufficient monitoring of symptoms, and no modifications in lifestyle
	Psychiatric comorbidities	Anxiety and depressive disorders
	Psychological characteristics	Psychological trait characterized by difficulty in identifying and verbally expressing emotions and coping strategies
	Perceptions	Tendency to tolerate symptoms, exacerbations and lifestyle limits as an inevitable consequence of asthma
	Expectations	Low expectations and aspirations about the achievable degree of control
	Behaviours	Smoking habits Incorrect use of inhaler leading to ineffective/reduced drug delivery
	Knowledge	Inadequate information about the disease's treatment.
Doctor related	Misdiagnosis	Limited awareness of asthma prevalence inadequate assessment
	Knowledge of current guidelines	Lack of consciousness and familiarity about guidelines availability
	Attitude towards guidelines	Difficulty in accepting the guidelines Lack of confidence in the guidelines Expectations of failure in following guidelines
	Guidelines implementations	Difficulty changing deep-seated routines

Disease Related

Patient Related

Doctor Related



Future Treatment for Asthma

- Inhaled corticosteroid development - 40 years back
- First monoclonal antibodies used - 20 years back
- More effective drug-delivery devices
- Bronchial thermoplasty- developed 10 years ago
- **But the proportion of uncontrolled patients, unfortunately, remains stable**
- Future ahead - to palpable personalised treatment for individual clinical (phenotype) or new biological (endotype)

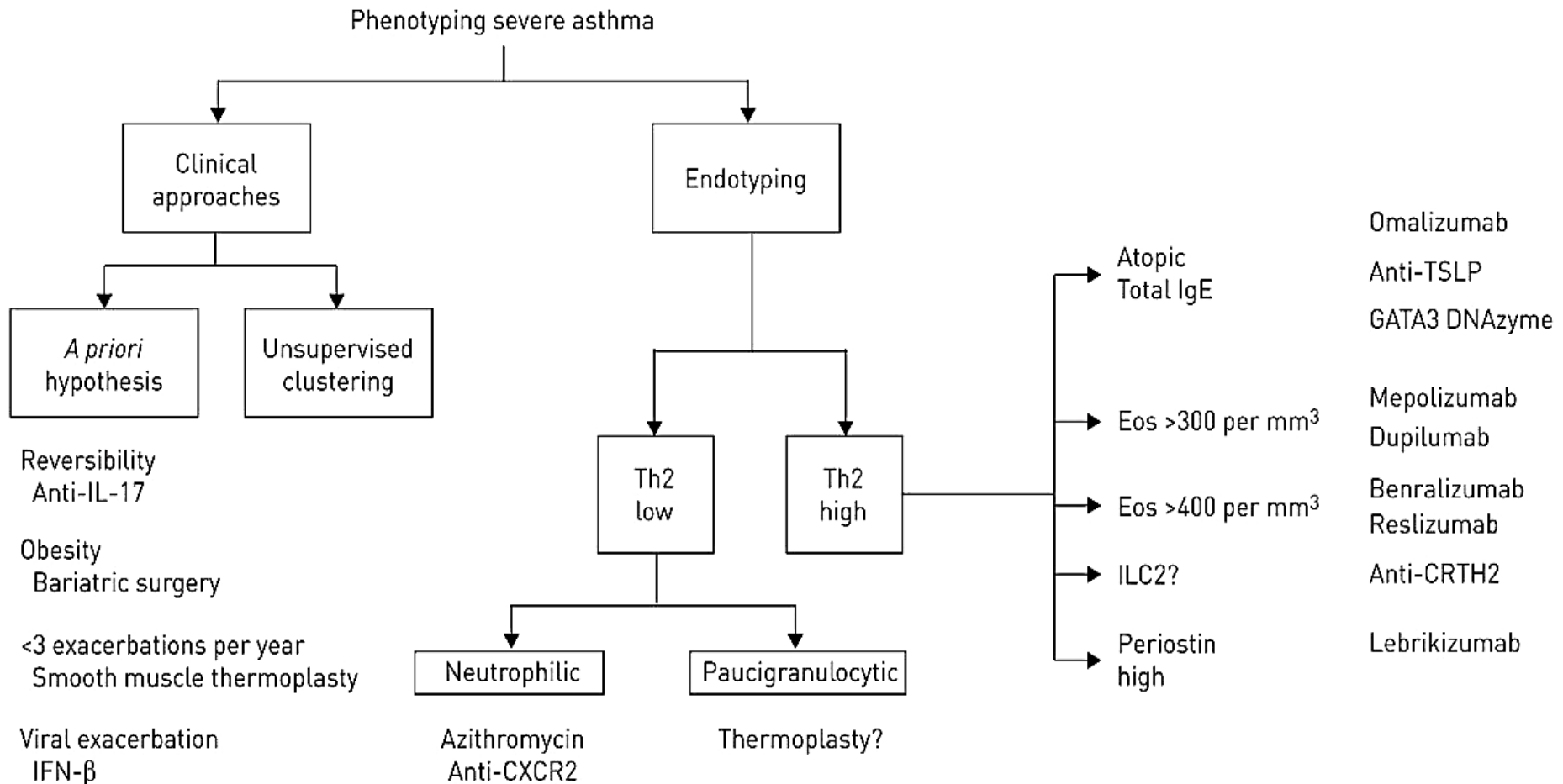
Future Treatment for Asthma

Therapeutic options

- *New ICS* - Improving drug half-life to minimise side effects and Other routes of administration , eg Nasal
- *New long-acting β -agonists (LABA)*
once-daily, very long-acting Indacaterol, vilanterol
- Long-acting muscarinic antagonists(LAMA)
initially developed for COPD
as an add-on therapy - tiotropium

Future Treatment for Asthma

Personalising medicine



Future Treatment for Asthma

Anti-IL-13 Therapy (Lebrikizumab)

The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med. 2011 Sep 22;365(12):1088-98

ORIGINAL ARTICLE

Lebrikizumab Treatment in Adults with Asthma

Jonathan Corren, M.D., Robert F. Lemanske, Jr., M.D., Nicola A. Hanania, M.D.,
Phillip E. Korenblat, M.D., Merdad V. Parsey, M.D., Ph.D., Joseph R. Arron, M.D., Ph.D.,
Jeffrey M. Harris, M.D., Ph.D., Heleen Scheerens, Ph.D., Lawren C. Wu, Ph.D.,
Zheng Su, Ph.D., Sofia Mosesova, Ph.D., Mark D. Eisner, M.D., M.P.H.,
Sean P. Bohlen, M.D., Ph.D., and John G. Matthews, M.B., B.S., Ph.D.

Lebrikizumab has been shown to selectively improve lung function in asthmatics with high levels of circulating periostin

Causes for Concern

➤ *Allergic bronchopulmonary aspergillosis*

- ? incompletely understood phenotype of asthma

- Overlapping forms – mildest and the most severe disease

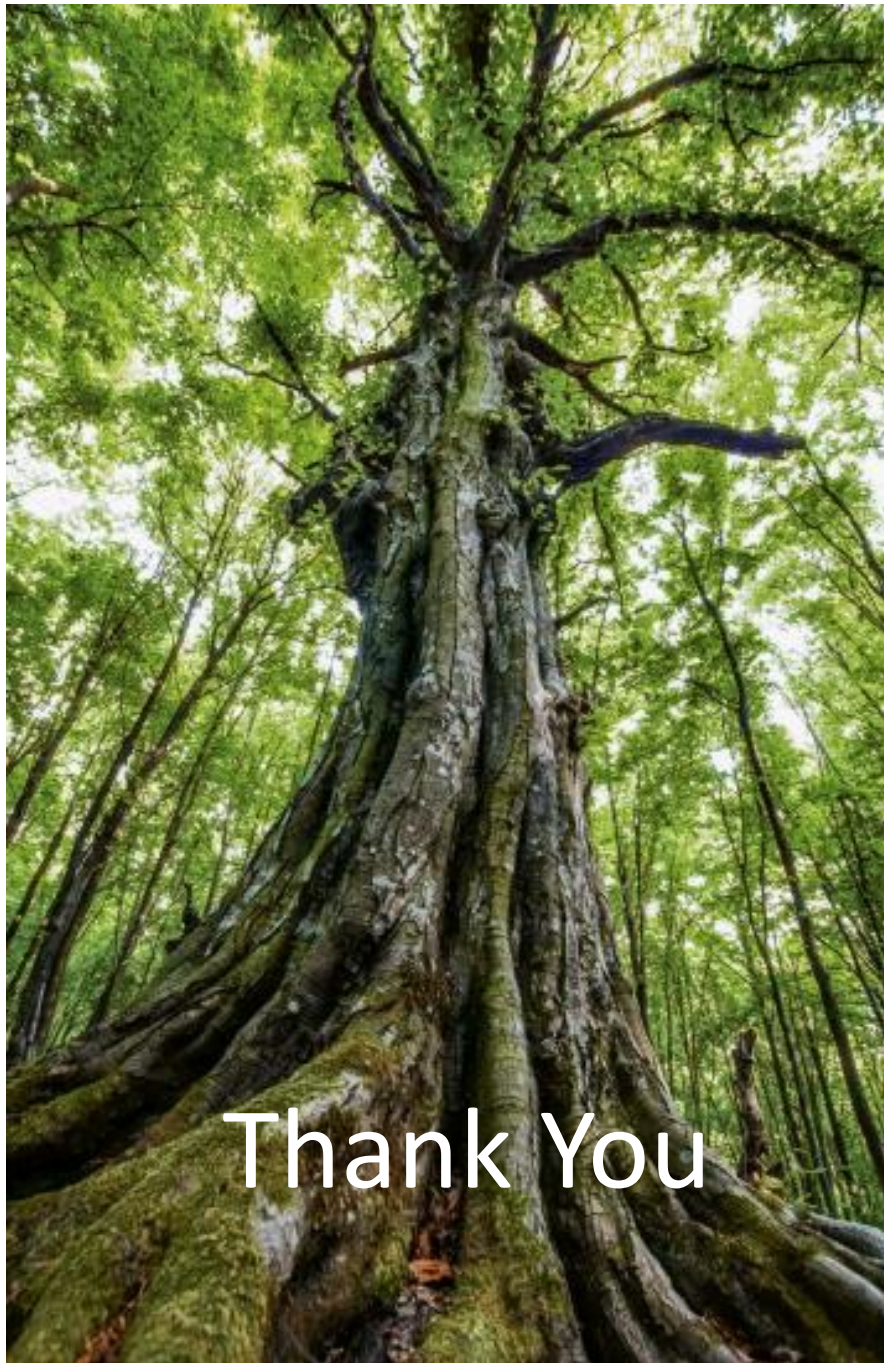
➤ *Eosinophilic granulomatosis with polyangiitis (EGPA)*

- ANCA positivity for better diagnostic accuracy in many unclear clinical situations

➤ *??? TB*

Summary

- Many advances in scientific knowledge about asthma
- In spite of these efforts suboptimal asthma control
- New GINA guideline – 2015 with a revised asthma definition
- Basic principles of management of asthma remains the stepwise approach
- ICS is in the fore front with others like LABA, LTRA
- Anti IgE is may need add-on to optimized standard therapy
- Good asthma control remain ever challenging
- Future treatment of asthma is personalizing according to pheno/endo typing



Thank You