

Medi Quest BRS Hospital

A monthly News letter from BRS Hospital

MANAGEMENT OF ASTHMA IN ADULTS AND ADOLESCENTS BASED ON GINA GUIDELINES 2021

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Introduction

GINA - Acronym for Global Initiative For Asthma gives guidelines for diagnosing and managing asthma. The guidelines are updated every year. This issue of Mediquet draws heavily from GINA guidelines of 2021. The discerning reader knows that GINA 2022 guidelines have already been published.

GINA no longer recommends SABA (Salbutamol) only treatment as it increases the risk of exacerbations. GINA now recommends that all adults and adolescents with asthma should receive ICS containing therapy along with SABA, which can be regular daily controller treatment or as needed low dose ICS Formoterol in mild Asthma

GINA guidelines also emphasizes the fact that person with good symptom control can develop a exacerbation .

Assessment of Asthma control:

Assessment of Asthma control has two domains ,assessing symptom control and assessing future risk of adverse Asthma outcomes namely.

- Future risk of exacerbations
- Persistent air flow limitation
- Side effects of medication

Assessment of Asthma control adults, adolescents and children 6-11years

Asthma symptom control		Level of Asthma symptom control		
		Well controlled	Partly control	Uncontrolled
In the past 4weeks has the patient had				
1. Day time Asthma > 2 /week	Yes/No			
2. Any night waking due to Asthma	Yes /No	None of those	1-2	3-4
3. SABA reliever for symptoms	Yes /No			
4. Limitation of activity	Yes / no			

Risk Factors for Poor Asthma Outcomes

Having uncontrolled asthma symptoms is an important risk factor for exacerbations

Additional potentially modifiable risk factors for flare ups even in patients with mild symptoms include

Medications : High SABA use , use of more than one 200 dose cannister per month , incorrect inhaler technique,not prescribed ICS , inadequate ICS.

Other Medical Conditions : Obesity , Chronic Rhino sinusitis, GERD , confirmed food allergy

Exposures : Smoking , allergen exposure if sensitized , air pollution

Lung function : Low FEV1 less than 60 % predicted

Other major independent risk factors for flare ups

More than one severe exacerbation in the last 12 months

Risk factors for the development of persistent air flow limitation

Preterm birth , Low Birth weight and greater infant weight gain

Patient not taking ICS for asthma exacerbation
 Low initial FEV1, blood eosinophilia
 Exposure to cigarette smoke / noxious chemicals
 Chronic mucous hypersecretion

Risk factors for Medication side effects

The risk of side effects increasing with higher doses of medications

Adverse systemic effects include

- Osteoporosis
- Glaucoma
- Cataracts
- Bruising
- Adrenal suppression

Local side effects

- Oral thrush and dyspnoea

Treatment of Asthma:

Goals

1. Symptom control
2. Minimize risk of adverse outcomes

Salient Features of GINA guidelines

1. Personalised control based asthma management
2. Asthma control is symptom control and risk reduction. Risk reduction of asthma exacerbations, reduced airflow and side effects of medication.

5 STEPS IN GINA

Patients are classified as belonging to STEPS 1- 4 based on the initial assessment of symptoms.

STEP 1 Symptoms less than twice a month

STEPS 2 Symptoms five days a week , but less than daily
 STEP 3 Symptoms all days and one or more night awakening /week
 STEP 4 Same as STEP 3 with reduced Lung function (Spirometry)
 Initial asthma presentation with an acute exacerbation
 STEP 5 STEP 4 not responding to adequate treatment

Treatment of Asthma Step Wise Management

STARTING TREATMENT

GINA guidelines 2021 advocates two treatment tracks.

Track 1 : The reliever is as needed low dose ICS Formoterol. This is the preferred approach as low dose form. ICS Formoterol reduces future risk of severe exacerbation compared with regimens with SABA as reliever with similar symptom control.

With this approach patient at any step with asthma symptom use low dose ICS – Formoterol with single inhaler for symptom relief.

In steps 3-5 patients also take ICS – Formoterol as controller and reliever therapy, this is called maintenance and reliever therapy MART.

TRACK I treatment is the preferred approach

Track II:

. This is an alternative approach if Track I is not possible or not preferred by the patient. The reliever is as needed SABA

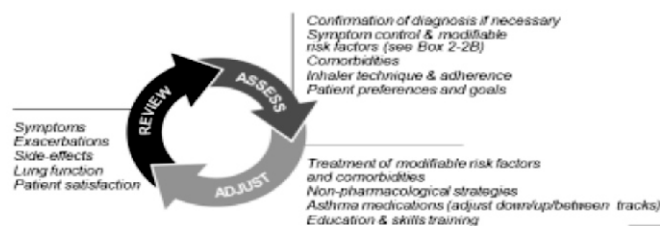
In step I the patient takes a SABA and low dose ICS for symptom relief when symptoms occur, either with a combination inhaler or ICS taken right after SABA.

In Step 2-5 SABA is taken for symptom relief and patients takes a ICS alone or ICS LABA controller medication every day other than ICS Formoterol combination

Adults & adolescents 12+ years

Personalized asthma management

Assess, Adjust, Review
for individual patient needs



CONTROLLER and PREFERRED RELIEVER (Track 1). Using ICS-formoterol as reliever reduces the risk of exacerbations compared with using a SABA reliever

STEPS 1 – 2
As-needed low dose ICS-formoterol

STEP 3
Low dose maintenance ICS-formoterol

STEP 4
Medium dose maintenance ICS-formoterol

STEP 5
Add-on LAMA. Refer for assessment of phenotype. Consider high dose maintenance ICS-formoterol, ± anti-IgE, anti-IL5/5R, anti-IL4R, anti-TSLP

RELIEVER: As-needed low-dose ICS-formoterol

See GINA severe asthma guide

CONTROLLER and ALTERNATIVE RELIEVER (Track 2). Before considering a regimen with SABA reliever, check if the patient is likely to be adherent with daily controller

STEP 1
Take ICS whenever SABA taken

STEP 2
Low dose maintenance ICS

STEP 3
Low dose maintenance ICS-LABA

STEP 4
Medium/high dose maintenance ICS-LABA

STEP 5
Add-on LAMA. Refer for assessment of phenotype. Consider high dose maintenance ICS-LABA, ± anti-IgE, anti-IL5/5R, anti-IL4R, anti-TSLP

RELIEVER: As-needed short-acting beta₂-agonist

Other controller options for either track (limited indications, or less evidence for efficacy or safety)

Low dose ICS whenever SABA taken, or daily LTRA, or add HDM SLIT

Medium dose ICS, or add LTRA, or add HDM SLIT

Add LAMA or LTRA or HDM SLIT, or switch to high dose ICS

Add azithromycin (adults) or LTRA. As last resort consider adding low dose OCS but consider side-effects

Track 1:

Step I & Step II	Symptoms < 5days a week	As-needed low dose ICS-formoterol	Eg. One puff of Formoterol 6 Budesonide 200 as when needed
Step III	Symptoms all days + > 1 night waking /week	Low dose maintenance ICS-formoterol	Eg. One puff BD Low dose ICS Formoterol 6 Budesonide 200 for three months and reassess
Step IV	(Step III + decreased lung function)	Medium dose maintenance ICS-formoterol	Eg. 2 puffs medium dose BD ICS oral Corticosteroids course
Step V	Uncontrolled symptoms While on treatment for Step IV	Refer for specialist opinion	Various options to be decided by the specialist include Addition of LAMA (eg: Tiotropium) High dose Formoterol Budesonide (> 800 mcg of Budesonide) Oral Corticosteroids Azithromycin 500mg 3days a week for 48weeks Investigate for Type 2 inflammation (refer Below) Use of Biologicals like Omalizumab

Track 2:

Step 1	Symptoms twice a month	Take ICS whenever SABA is taken	Eg. Budecort 200 mcg taken whenever SABA like Salbutamol taken
Step 2	Symptoms 5 days a week	Low dose ICS as maintenance	Eg. Budecort 200 mcg bd as maintenance with Salbutamol as needed
Step 3	Symptoms daily with > 1 night waking/week	Low dose ICS + LABA as maintenance	Eg. Salmeterol 25 mcg +Fluticasone Propionate 125 mcg bd with Salbutamol inhalations as needed
Step 4	Same as Step 3 with reduced lung function	Medium dose ICS + LABA as maintenance * High dose ICS + LABA can also be used in this step	Eg Salmeterol 25 mcg + Fluticasone Propionate 250 mcg bd with Salbutamol inhalations as needed +/- short course of OCS Salmeterol 25 mcg + Fluticasone Propionate 250 mcg two puffs twice daily
Step 5	Step 4 not responding to treatment	Refer to Asthma Specialist	The same options are exercised by the specialist as mentioned in Track 1 for Step five

Dosing recommendations of Formoterol / Budesonide 6mcg / 200mcg for Reliever therapy from different sources From European Respiratory Journal

- 1 puff at a time for relief of asthma symptoms.
- For severe attack 1puff every 2-3 hours.
- For emergency (Hard to speak or breath) 1puff every hour till hospitalisation.

Maximum dosing of Formoterol / Budesonide 6/200 in 24 hours

3 puffs at a single time and a maximum of 6 puffs per day (Australia)

Maximum dosing From GINA in a Day Formoterol 54mcg
Budesonide 960mcg

Dosing of ICS

Low, medium and high ICS doses: adults/adolescents

Adults and adolescents (12 years and older)			
Inhaled corticosteroid	Total daily ICS dose (mcg) – see notes above		
	Low	Medium	High
Beclomethasone dipropionate (pMDI, standard particle, HFA)	200-500	>500-1000	>1000
Beclomethasone dipropionate (DPI or pMDI, extrafine particle, HFA)	100-200	>200-400	>400
Budesonide (DPI, or pMDI, standard particle, HFA)	200-400	>400-800	>800
Ciclesonide (pMDI, extrafine particle, HFA)	80-160	>160-320	>320
Fluticasone furoate (DPI)	100		200
Fluticasone propionate (DPI, or pMDI, standard particle, HFA)	100-250	>250-500	>500
Mometasone furoate (DPI)	Depends on DPI device – see product information		
Mometasone furoate (pMDI, standard particle, HFA)	200-400		>400

What is type 2 inflammation ?

Type 2 inflammation in asthmatics is caused by increased cytokines IL - 4, 5 and 13 produced by adaptive immune system on recognition of allergens and characterised by

1. Increased Blood Eosinophils > 150 /microliter
2. Increased Sputum Eosinophils > 2 %
3. Increased FeNo more than 20 ppB , increased exhalation of Nitric Acid

Type 2 inflammation in patients Step 1-3,4 responds to ICS taken regularly with proper technique , if there is inadequate response Biologicals may have to be used . The high cost of biologicals precludes their routine use.

Biological used in patients Step 5 with Type 2 Inflammation

Anti IgE – Omalizumab

Anti IL5 – Mepolizumab

Anti IL 5 Rx – Reslizumab

Anti IL4R - Dupilumab

Review of patients with Asthma

How frequently one should review a patient with asthma ?

Patients should be seen 1-3 months after starting treatment and every 3-12 months thereafter.

After exacerbation review within one week should be scheduled.

How long do you observe a patient being given an asthma controller to either step up or step down?

Step down

If the patient has good control of their asthma for at least 3 months, treatment can be stepped down; however, the patient should be reassessed in 2-4 weeks to make sure that control is maintained with the new treatment

Step up

Short term step up in maintenance ICS for 1-2 weeks during viral fever season or seasonal allergen exposure

Sustained Step up is recommended in patients whose asthma is uncontrolled

How long after a change to treatment should an asthma review should take place?

If your treatment has changed, you should have a follow-up Asthma Review after 1-3 months or within a month for children